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# Keysight Licensing

Quick Start Guide



# Notices

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This product has been designed and tested in accordance with accepted industry standards, and has been supplied in a safe condition. To review the Declaration of Conformity, go to <http://www.keysight.com/go/conformity>.

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## Safety Notices

### CAUTION

A CAUTION notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION notice until the indicated conditions are fully understood and met.

### WARNING

**A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.**

The following safety precautions should be observed before using this product and any associated instrumentation.

This product is intended for use by qualified personnel who recognize shock hazards and are familiar with the safety precautions required to avoid possible injury. Read and follow all installation, operation, and maintenance information carefully before using the product.

#### **WARNING**

**If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only.**

The types of product users are:

- Responsible body is the individual or group responsible for the use and maintenance of equipment, for ensuring that the equipment is operated within its specifications and operating limits, and for ensuring operators are adequately trained.
- Operators use the product for its intended function. They must be trained in electrical safety procedures and proper use of the instrument. They must be protected from electric shock and contact with hazardous live circuits.
- Maintenance personnel perform routine procedures on the product to keep it operating properly (for example, setting the line voltage or replacing consumable materials). Maintenance procedures are described in the user documentation. The procedures explicitly state if the operator may perform them. Otherwise,

they should be performed only by service personnel.

- Service personnel are trained to work on live circuits, perform safe installations, and repair products. Only properly trained service personnel may perform installation and service procedures.

#### **WARNING**

**Operator is responsible to maintain safe operating conditions. To ensure safe operating conditions, modules should not be operated beyond the full temperature range specified in the Environmental and physical specification. Exceeding safe operating conditions can result in shorter lifespans, improper module performance and user safety issues. When the modules are in use and operation within the specified full temperature range is not maintained, module surface temperatures may exceed safe handling conditions which can cause discomfort or burns if touched. In the event of a module exceeding the full temperature range, always allow the module to cool before touching or removing modules from chassis.**

**Keysight products are designed for use with electrical signals that are rated Measurement Category I and Measurement Category II, as described in the International Electrotechnical Commission (IEC) Standard IEC 60664. Most measurement, control, and data I/O signals are Measurement Category I and must not be directly connected to mains voltage or to voltage sources with high transient over-voltages. Measurement Category II connections require protection for high transient over-voltages often associated with local AC mains connections. Assume all measurement, control, and data I/O connections are for connection to Category I sources unless otherwise marked or described in the user documentation.**

Exercise extreme caution when a shock hazard is present. Lethal voltage may be present on cable connector jacks or test fixtures. The American National Standards Institute (ANSI) states that a shock hazard exists when voltage levels greater than 30V RMS, 42.4V peak, or 60VDC are present. A good safety practice is to expect that hazardous voltage is present in any unknown circuit before measuring.

Operators of this product must be protected from electric shock at all times. The responsible body must ensure that operators are prevented access and/or insulated from every connection point. In some cases, connections must be exposed to potential human contact. Product operators in these circumstances must be trained to protect themselves from the risk of electric shock. If the circuit is capable of operating at or above 1000V, no conductive part of the circuit may be exposed.

Do not connect switching cards directly to unlimited power circuits. They are intended to be used with impedance-limited sources. NEVER connect switching cards directly to AC mains. When connecting sources to switching cards, install protective devices to limit fault current and voltage to the card.

Before operating an instrument, ensure that the line cord is connected to a properly-grounded power receptacle. Inspect the connecting cables, test leads, and jumpers for possible wear, cracks, or breaks before each use.

When installing equipment where access to the main power cord is restricted, such as rack mounting, a separate main input power disconnect device must be provided in close proximity to the equipment and within easy reach of the operator.

For maximum safety, do not touch the product, test cables, or any other

instruments while power is applied to the circuit under test. ALWAYS remove power from the entire test system and discharge any capacitors before: connecting or disconnecting cables or jumpers, installing or removing switching cards, or making internal changes, such as installing or removing jumpers.

Do not touch any object that could provide a current path to the common side of the circuit under test or power line (earth) ground. Always make measurements with dry hands while standing on a dry, insulated surface capable of withstanding the voltage being measured.

The instrument and accessories must be used in accordance with its specifications and operating instructions, or the safety of the equipment may be impaired.

Do not exceed the maximum signal levels of the instruments and accessories, as defined in the specifications and operating information, and as shown on the instrument or test fixture panels, or switching card.

When fuses are used in a product, replace with the same type and rating for continued protection against fire hazard.

Chassis connections must only be used as shield connections for measuring circuits, NOT as safety earth ground connections.

If you are using a test fixture, keep the lid closed while power is applied to the device under test. Safe operation requires the use of a lid interlock.

Instrumentation and accessories shall not be connected to humans.

Before performing any maintenance, disconnect the line cord and all test cables.

To maintain protection from electric shock and fire, replacement components in mains circuits – including the power transformer,

test leads, and input jacks – must be purchased from Keysight. Standard fuses with applicable national safety approvals may be used if the rating and type are the same. Other components that are not safety-related may be purchased from other suppliers as long as they are equivalent to the original component (note that selected parts should be purchased only through Keysight to maintain accuracy and functionality of the product). If you are unsure about the applicability of a replacement component, call an Keysight office for information.

### WARNING

**No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electrical shock do not remove covers. For continued protection against fire hazard, replace fuse with same type and rating.**

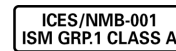
## PRODUCT MARKINGS:



The CE mark is a registered trademark of the European Community.



Australian Communication and Media Authority mark to indicate regulatory compliance as a registered supplier.



This symbol indicates product compliance with the Canadian Interference-Causing Equipment Standard (ICES-001). It also identifies the product is an Industrial Scientific and Medical Group 1 Class A product (CISPR 11, Clause 4).



South Korean Class A EMC Declaration. This equipment is Class A suitable for professional use and is for use in electromagnetic environments outside of the home. A 급 기기 ( 업무용 방송통신기자재 ) 이 기기는 업무용 (A 급 ) 전자파적합기기로 서 판 매자 또는 사용자는 이 점을 주 의 하 시 기 바 라 며 , 가정외의 지역에서 사용하는 것 을 목 적 으 로 합 니 다.



This product complies with the WEEE Directive marketing requirement. The affixed product label (above) indicates that you must not discard this electrical/electronic product in domestic household waste.

**Product Category:** With reference to the

equipment types in the WEEE directive Annex 1, this product is classified as “Monitoring and Control instrumentation” product. Do not dispose in domestic household waste. To return unwanted products, contact your local Keysight office, or for more information see <http://about.keysight.com/en/companyinfo/environment/takeback.shtml>.



This symbol indicates the instrument is sensitive to electrostatic discharge (ESD). ESD can damage the highly sensitive components in your instrument. ESD damage is most likely to occur as the module is being installed or when cables are connected or disconnected. Protect the circuits from ESD damage by wearing a grounding strap that provides a high resistance path to ground. Alternatively, ground yourself to discharge any built-up static charge by touching the outer shell of any grounded instrument chassis before touching the port connectors.



This symbol on an instrument means caution, risk of danger. You should refer to the operating instructions located in the user documentation in all cases where the symbol is marked on the instrument.



This symbol indicates the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of the product.



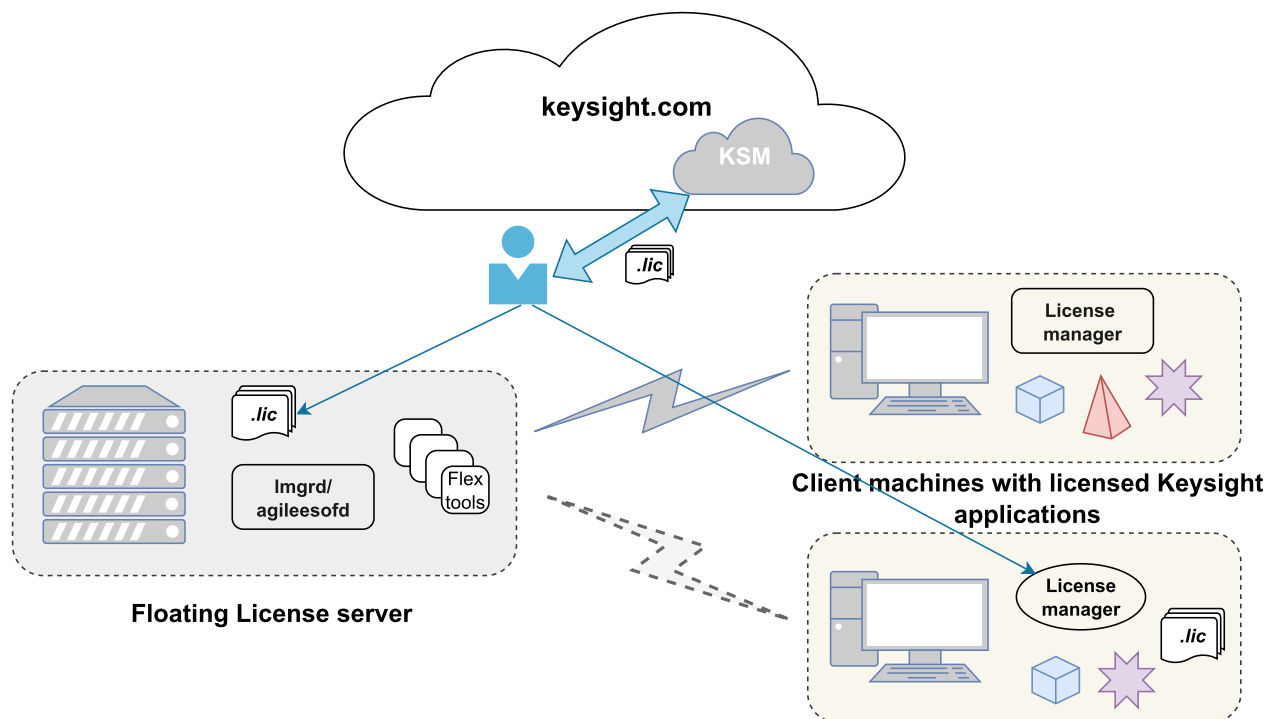
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## Licensing Quick Start Guide

This illustration shows a typical Keysight licensing installation with a floating license server and two client machines:



The floating license server, on the left, provides licenses for the two clients at the right; the second client also has node-locked licenses for use on that machine only. When the applications (shapes) are run, they request licenses, which are provided from any available location by the licensing software. When users install new Keysight software, they get a license manager utility that helps them install and manage their licenses.

The connection to the floating license server is optional for the second client, which has its own node-locked licenses. If connected, the client will use either node-locked or floating licenses, whichever are available; if disconnected from the server and/or from the internet, the client will still be able to use its local node-locked licenses.

A license server process, which can be running remotely (on the floating license server) or locally (on the clients) comprises the two executables *lmgrd* and *agileesofd*. The *lmgrd* executable is the FlexNet license server manager, and *agileesofd* is Keysight's vendor daemon (*lmgrd* is responsible for starting *agileesofd*). Some other Keysight products use the *agilent* vendor daemon, not to be confused with *agileesofd*.

The user is responsible for obtaining license files from the Keysight Software Manager (KSM) website (part of <https://www.keysight.com>) and installing the floating licenses on the floating license server and the node-locked licenses on the client.

To get started, follow the instructions below to obtain and install licenses. Keep the following points in mind:

- If you have several Keysight software products installed, you may have several different license managers. To license one of your products, use the license manager installed with that product. See the [License Managers](#) section of this document for detail.
- If you use floating licenses, **whether or not you are installing new licenses**, you may need to [update the floating license server software](#) to work with your new products. Sections in this guide contain information covering this, drawn from the [Keysight Licensing Administrator's Guide](#).
- If you need help, contact Keysight: <https://www.keysight.com/find/contactus>.

## Quick Start

### Choose the machine where you will install your license(s)

If you have purchased floating licenses, you'll install those licenses **on the floating license server**, not on the machines where you will run the licensed software. You may also need to update the license server software on your floating license server.

- [Steps to install floating licenses on a floating license server](#) – note you may need to update your floating license server(s) whether or not you are installing new licenses.

In all other cases (node-locked, transportable, and USB portable licenses, whether counted or uncounted), you'll install your license **on the machine where you will run the licensed software**.

- [Steps to install node-locked, transportable, and USB portable licenses on your client machine](#)

## Resources

To learn more about Keysight licensing, see the following resources.

Information about Keysight Licensing:

- Keysight Licensing Overview on [keysight.com](https://www.keysight.com) – <https://www.keysight.com/find/licensing> and you can check pages listed as **Related Links** on that page.

Licensing software downloads:

- PathWave License Manager download – <https://www.keysight.com/find/plm>
- Keysight License Server download – <https://www.keysight.com/find/licenseserver>
- Additional tools listed as **Related Links** on <https://www.keysight.com/find/licensingtools>

To obtain license files and manage your Keysight software:

- Keysight Software Manager – <https://www.keysight.com/find/ksm>

Troubleshooting:

- Keysight Licensing Administrator's Guide – <https://www.keysight.com/find/licensingdoc>
- The Admin Guide provides help for solving network connectivity issues (such as communication with a license server through a firewall):
  - [Accessing Floating Licenses through a Firewall - Keysight Licensing Administrator's Guide - Confluence](#)
  - [Flexera Communication Problems - Keysight Licensing Administrator's Guide - Confluence](#)

Additional documentation:

- Each licensing tool has help available from its **Help** menu.

## Install node-locked, transportable, and USB portable licenses on your client machine

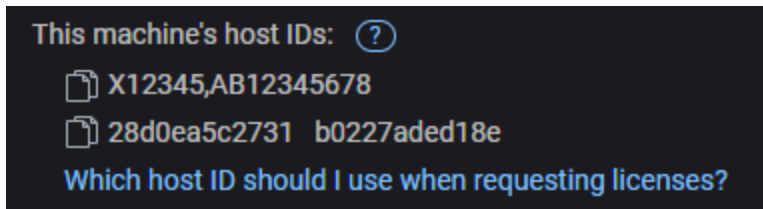
### Step 1: Install your software and get your host ID

If it is appropriate for your product, your Keysight software installation will include PathWave License Manager. If you need to install or upgrade PathWave License Manager, download it from <https://www.keysight.com/find/plm>.

**On the machine you want to license,**

- a. If the software to be licensed is not installed, install it.
- b. If you're using USB portable (dongle) licenses, install a driver from <https://www.keysight.com/find/licensingusbdriver>.
- c. Start PathWave License Manager.

- d. Copy this machine's **host ID**:



You'll need this host ID to get your license.

When choosing among host IDs (as in the image above, where there are three), ensure that you choose a permanent or stable host ID to identify your machine. Avoid host IDs that are tied to docking stations or removable/USB network adapters. Although the machine does not need to be connected to a network to use node-locked licenses, the network adapter associated with the host ID must be enabled.

Check the PathWave License Manager online help FAQ section for updated information and assistance in choosing a host ID.



## Step 2: Get your license

On any machine with internet access,


- Find your **entitlement certificate** for the purchased product.  
Typically, your entitlement certificate is emailed to you, but in some cases a paper copy is shipped with the purchased product.
- Find the host ID of the machine to license – see Step 1 above.
- Visit Keysight Software Manager (KSM) [www.keysight.com/find/softwaremanager](http://www.keysight.com/find/softwaremanager) and follow the steps to request a license. If you don't have a KSM account, you will be guided to create one.
- You'll receive your license file via email or download. Save it to a location that can be accessed by all accounts, such as *C:\Users\public*.

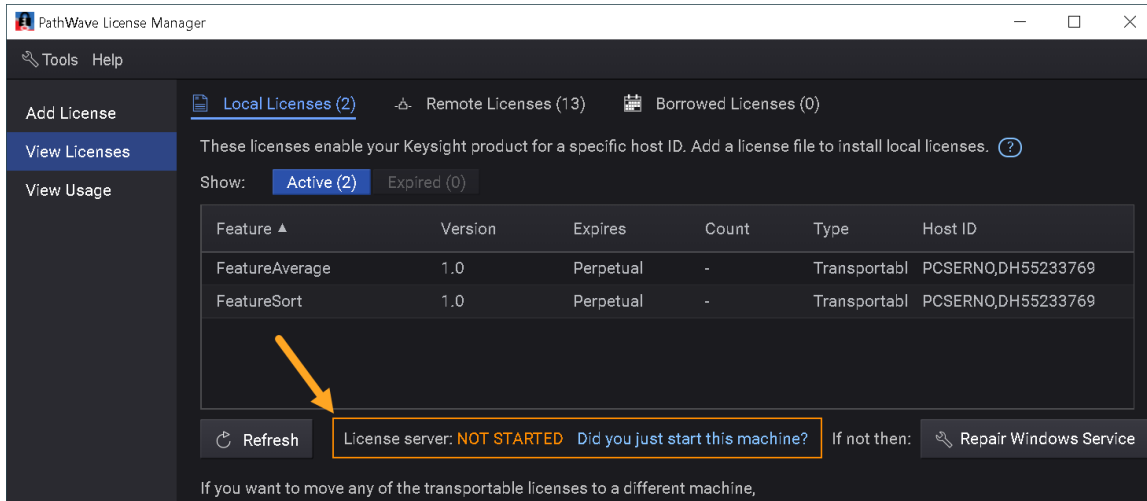
## Step 3: Install your license

On the machine you want to license,

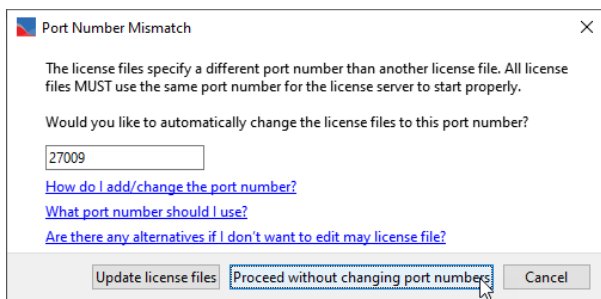
- Start PathWave License Manager .
- Click the **Add a License File** button.  
Follow the steps to install your license, consulting the PathWave License Manager online help for details if necessary.
- Select **View Licenses** to see your new license. .

## Step 4: Resolve problems

- If licenses are not usable or are not visible in PathWave License Manager immediately after rebooting your machine, **wait two minutes** to allow supporting processes to start up, then refresh PathWave License Manager  .
- If the licenses are still not visible, look for a license server message. In MS Windows, if you see this message, click the **Repair Windows Service** button to resolve the problem.



- If some of your licenses are still not visible, they may be located in **user-specific locations** (such as *C:\Users\fred\Desktop*) where license processes cannot access them. This can happen if you installed licenses in those locations using a different license manager (not PathWave License Manager). Using the license manager provided with the appropriate product, remove and reinstall such licenses to a generally accessible location, such as *C:\Users\public* .
- If you install a license using a Keysight Floating License Manager, after having installed PathWave License Manager, you may see a **Port Mismatch** dialog box:



This can be safely ignored by clicking **Proceed without changing port numbers**.

- If you're experiencing other problems, see the **Help** for your license management tool and refer also to the Keysight Licensing Administrator's Guide (<https://www.keysight.com/find/licensingdoc>).

**Proceed:**

- You may need to update your license server(s) whether or not you are installing new licenses:
  - [Update an Existing License Server \(Windows\)](#)
  - [Update an Existing License Server \(Linux\)](#)

## Install floating licenses

The procedure on this page assumes that you will be adding your new licenses to an existing floating license server (a dedicated machine), using the FlexNet tools.

- If you need to set up a new floating license server, see the instructions in this document [Set up a New License Server](#). For additional information, refer to the Keysight Licensing Administrator's Guide, available at <https://www.keysight.com/find/licensingdoc>, in the section entitled "Setting up a New License Server."
- If you need to migrate your floating licenses from a legacy KLM6-based floating license server to the latest Keysight License server version, see the instructions in this document [Migrating from a KLM 6 floating license server](#).

### Step 1: Update your license server if necessary

- a. See the instructions to update your license server in this document
  - i. [Update an existing license server \(Windows\)](#)
  - ii. [Update an existing license server \(Linux\)](#)

### Step 2: Obtain a license file

- a. Find your **entitlement certificate** for the purchased product. 

Your entitlement certificate is typically emailed to you, but in some cases a paper copy is shipped with the purchased product.

- b. Determine the license server's host ID in one of the following ways.

- On the server machine, execute `lmutil lmhostid` to get the FlexNet host ID directly.

**NOTE**

If you see a `No such file or directory` error when you try to run `lmutil`, then you need to install the [Linux Standard Base library](#). On Ubuntu use `sudo apt update && sudo apt install lsb-core -y`, or on RedHat (RHEL) use `yum` to install `redhat-lsb`.

- Windows: On the server machine, execute `getmac /v /fo list`. Your host ID is listed as the Physical Address of the Network Adapter.
- Linux: On the server machine, execute `/sbin/ifconfig -a`  
Examine the `ifconfig` results to find your Ethernet interface (often called `eth0`) and use its hardware address (`HWaddr`). For example, in the `ifconfig` output shown below, the host ID is `00:0c:29:c0:06:65`.

```
eth0 Link encap:Ethernet HWaddr 00:0c:29:c0:06:65
      inet addr:156.140.113.178 Bcast:156.140.113.255 Mask:255.255.254.0
      inet6 addr: fe80::20c:29ff:fec0:665/64 Scope:Link
      UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
      RX packets:36522 errors:0 dropped:0 overruns:0 frame:0
      TX packets:10160 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:38094114 (38.0 MB)
      TX bytes:695114 (695.1 KB)
```

2. Visit Keysight Software Manager (KSM) [www.keysight.com/find/softwaremanager](http://www.keysight.com/find/softwaremanager) and follow the steps to request a license.  
If you don't have a KSM account, you will be guided to create one.

### Step 3: Save the license file

To save the license file for use by Keysight Licensing:

- a. Make a copy of the license file on your hard disk, in:
  - Windows: `C:\ProgramData\Keysight\Licensing\Licenses\Server`
  - Linux: `/var/opt/keysight/licensing/licenses/server`
- b. Open or view the license files in the directory to ensure they all specify the same port value (between 27000 and 27009, inclusive) in their SERVER statements. If not, edit them to have the same port value. You will experience licensing failures if the licenses have conflicting port numbers.

- c. On Linux, you must set the file permissions so that it can be read by *lmgrd*. For example:  

```
chmod a+r <filename.lic>
```

This example gives all users read access to the license.

#### Step 4: Restart the license server manager

Windows: To start the FlexNet license server manager (*lmgrd*) and vendor daemon (*agileesofd*), restart the Windows service (typically named **EEsof EDA License Server**).

Linux: Start the license server manager (*lmgrd*) and vendor daemon (*agileesofd*) on the machine to which the license is tied as follows:

- a. Change directory to the location of your server files (for example, */opt/keysight/licensing/agileesofd*).
- b. Run the following command to start *lmgrd*:

```
./lmgrd -c <license file path> -l <license log file path>
```

where:

*<license file path>* specifies one or more full path names to license file(s) and/or folder(s) containing license files.

*<license log file path>* is the full path name to the debug log file.

#### Step 5: Configure the client machine(s)

- a. Install the licensed software on the machine(s) where you will use it (the clients).
- b. In PathWave License Manager, follow the on-screen instructions to **Specify a Remote License Server**, so that the product can get its license from the server machine.
- c. Select **View Licenses** to see your new license. ✓

## Set Up a New License Server

### NOTE

This procedure describes setting up a floating license server that has no previous licenses or licensing software installed. If you have an existing floating license server and wish to upgrade or add to it, see [Update an Existing License Server \(Windows\)](#) or [Update an Existing License Server \(Linux\)](#) in this document.

The following steps describe license server setup using the Keysight License Server download. Keysight recommends using this procedure and **not** to attempt adapting a Keysight license manager installation (such as PathWave License Manager) for the purpose of serving floating licenses.



Ensure that your chosen license server conforms to your purchased license types. Your floating licenses may be single-site, single-region, or worldwide licenses; you can find this information in the license files. For additional help on choosing a license server, see the [FlexNet Publisher License Administration Guide](#).

Follow these steps to set up a new license server:

- [Prerequisite: Select a license server machine](#)
- [Step 1: Install Keysight License Server on the license server machine](#)
- [Step 2: Obtain a license file](#)
- [Step 3: Save the license file on the license server machine](#)
- [Step 4: Manually start the license server manager to verify your setup](#)
- [Step 5: Automate the startup of the license server manager](#)
- [Step 6: Reboot to test the new license server](#)

*Prerequisite: Select a license server machine*

- See <http://www.keysight.com/find/licenseserver> for supported operating systems.
- See [Multiple Server Configurations](#) for important considerations when setting up redundant servers.
- For more information, see Selecting a License Server Machine in <https://www.keysight.com/find/fnpadmin>

*Step 1: Install Keysight License Server on the license server machine*

- a. On your license server machine, open your web browser and navigate to [Keysight License Server | Keysight](#).
- b. Download the appropriate package for your platform.

**NOTE**

The Keysight License Server must be version 2019.05.17 or greater to be compatible with clients that use PathWave License Manager.

- c. Extract the files to the following folder (you may need to create the folder using `mkdir -p <path-name>`):
  - Windows: `C:\Program Files\Common Files\Keysight\Licensing Daemon\bin`
  - Linux: `/opt/keysight/licensing-daemon/bin`

### Step 2: Obtain a license file

- a. If you have ordered a licensed Keysight product, you'll receive (typically by downloading or by email) an entitlement certificate. Note the order number and certificate number.
- b. Determine the license server's host ID or the dongle ID in one of these ways:
  - On the server machine, execute `lmutil lmhostid` to get the FlexNet host ID directly.
  - On the server machine:
    - Windows: execute `getmac /v /fo list`. Your host ID is listed as the Physical Address of the Network Adapter.
    - Linux: execute `/sbin/ifconfig -a`. Examine the ifconfig results to find your Ethernet interface (often called eth0) and use its hardware address (HWaddr), removing the colons to create the alphanumeric host ID
  - If this is a USB portable (dongle) license, read the dongle ID directly from the key or, with the dongle connected to your computer, execute `lmutil lmhostid -flexid`
- c. Go to <http://www.keysight.com/find/softwaremanager> to obtain your license file. Follow the instructions on screen to enter your order number, certificate number, and host ID.

**NOTE**

If you haven't used Keysight Software Manager (KSM) before, you may need to create an account.

- d. Follow the KSM website's instructions to request a license file. The license file will be emailed to you or made available for download.

### Step 3: Save the license file on the license server machine

The port number is typically specified in the license file and is usually **27009**. See [Port Number Conflicts](#) for what to do if your license files have different port numbers, or if some do not have port numbers.

- a. Make a copy of the license file on your hard disk in:
  - Windows: `C:\ProgramData\Keysight\Licensing\Licenses\Server`
  - Linux: `/var/opt/keysight/licensing/licenses/server`
- b. If the license is tied to a USB dongle, you must install a [dongle driver](#).

### Step 4: Manually start the license server manager to verify your setup

This is to verify that there are no networking, host name resolution, or other issues that prevent the license server manager from starting.

- a. From the install folder for *lmgrd*, execute the following command (entered on a single line without line breaks):

```
Windows: lmgrd -c C:\ProgramData\Keysight\Licensing\Licenses\Server
-l C:\ProgramData\Keysight\Licensing\Log\LicenseServer.log
Linux: ./lmgrd -c /var/opt/keysight/licensing/licenses/server
-l /var/opt/keysight/licensing/log/license-server.log
```

- b. Verify that the server is UP and has licenses: `./lmutil lmstat -a`

### Step 5: Automate the startup of the license server manager

**NOTE**

You must install a license (Step 3 above) before you can set up automated startup of the license server manager and the vendor daemon.

#### On Windows

To start the FlexNet license server manager (*lmgrd*) and vendor daemon (*agileesofd*) and automate their restart upon PC reboot, configure a Windows service as follows:

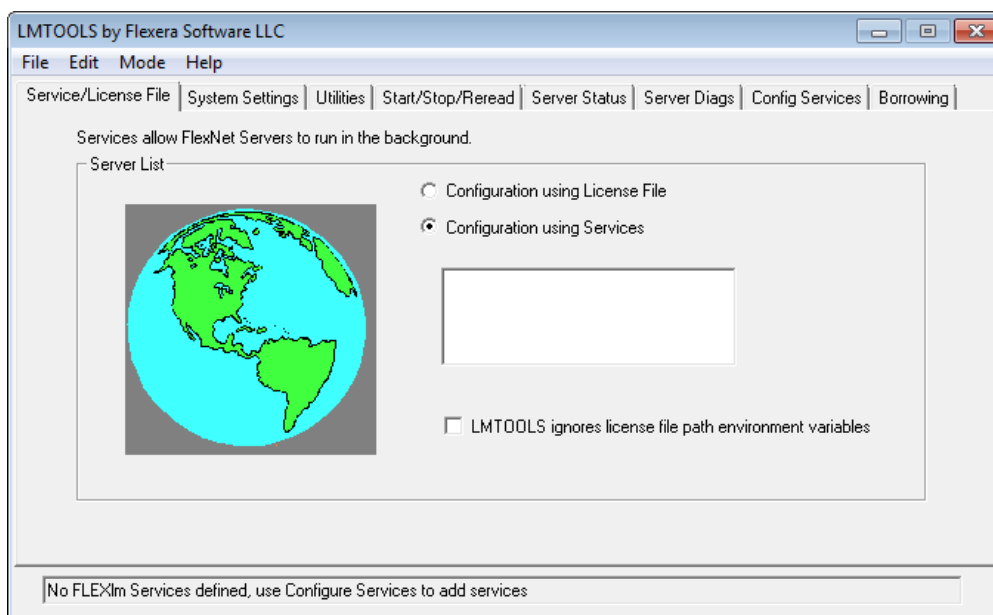
**NOTE**

You must have administrator privileges to configure a Windows service. The service will run under the local system account as the special *Local Server* user, which does not have special system privileges. This means you should consider the following:

- The log file must be in a location that is writable by all users. If you specify a log file location that is not writable, the service will immediately exit, and will not indicate any errors (it returns an exit code of 0 even though it encountered an error). Since the log file was not writable, you will have no error message anywhere to indicate what went wrong, or even that there was a problem.
- The license files must be in a location that is readable by all users. If you specify a location that isn't readable, the log file will contain an error indicating that the license file couldn't be found.

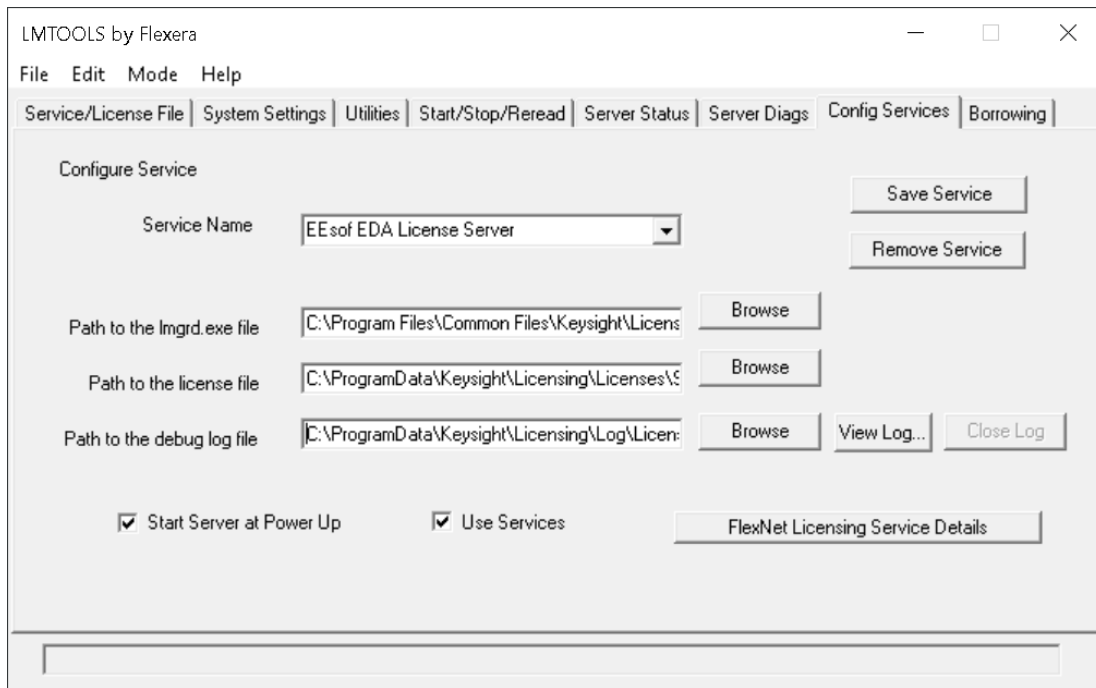
- a. Run *lmtools.exe* from `C:\Program Files\Common Files\Keysight\Licensing Daemon\Agileesofd`. The **LMTTOOLS** window is displayed.

- b. In the **Service/License File** tab, select the **Configuration using Services** option.



- c. Click the **Config Services** tab and enter the following details. See the NOTE above for additional information about paths.
- Service Name:** For compatibility with Keysight EDA products, use the name **EEsof EDA License Server**.
  - Path to the lmgrd.exe file:** Click **Browse** and specify the path to the *lmgrd.exe* file on the license server (for example, `C:\Program Files\Common Files\Keysight\Licensing Daemon\Agileesofd\lmgrd.exe`).
  - Path to the license file:** Click **Browse** and specify the path to the license directory on the license server (for example, `C:\ProgramData\Keysight\Licensing\Licenses\Server`). Generally, it is best to make this a path to a directory. If you know you need to specify individual license file(s) instead of a directory, you can do so (for example, `c:\ProgramData\Keysight\Licensing\Licenses\Server\license.lic`).
  - Path to the debug log file:** Click **Browse** and specify the path to the debug log file on the license server (for example, `C:\ProgramData\Keysight\Licensing\Log\LicenseServer.log`).
- d. Select the **Use Services** option.
- e. Select the **Start Server at Power Up** option.

- f. Click **Save Service**. The following figure shows the configured services in the **LMTOOLS** window.



- g. Click the **Start/Stop/Reread** tab and observe that your service shows up in the **FlexNet license services installed on this computer** list.
- h. To start the service, on the **Start/Stop/Reread** tab, select your service and click **Start Server**.

**NOTE**

To verify that the license server manager and the vendor daemon are running, click the **Config Services** tab again and click **View Log**. A log window appears that indicates whether *lmgrd* and *agileesofd* are up and running.

If you need to stop the license server, execute the following (substituting your license location if it is different):

```
lmutil lmdown -c C:\ProgramData\Keysight\Licensing\Licenses
```

**On Linux**

To run *lmgrd* manually once:

- Change directory to `/opt/keysight/licensing-daemon/bin`
- Run the following command to start *lmgrd*:

```
./lmgrd -c /var/opt/keysight/licensing/licenses/server -l /var/-  
opt/keysight/licensing/log/license-server.log
```

**NOTE**

If you see one of these errors when you start *lmgrd*:

```
lmgrd: /lib64/ld-lsb-x86-64.so.3: bad ELF interpreter: No such file or
directory
```

```
lmgrd: No such file or directory
```

then you need to install the [Linux Standard Base library](#) . Use `yum` to install `redhat-lsb` .

If you need to stop the license server manually, execute the following (substituting your license location if it is different):

```
lmutil lmdown -c /var/opt/keysight/licensing/licenses
```

To automate the license server manager's startup upon system reboot

- a. Confirm the license server is stopped before executing the following steps.
- b. Navigate to: `cd /etc/systemd/system`
- c. Configure a service: `sudo touch keysight-lmgrd.service # to create the service`
- d. Open `keysight-lmgrd.service` in an editor: `sudo gedit keysight-lmgrd.service`
- e. Add code similar to the following sample (check the paths to `lmgrd`, your licenses file(s), and the server log file, on your machine and modify paths in the script if they differ from your configuration):

```
[Unit]
Description=Keysight License Server
Wants=network-online.target
After=network-online.target
[Service]
User=lmgrd
Group=lmgrd
ExecStart=/opt/keysight/licensing-daemon/bin/lmgrd -c
/var/opt/keysight/licensing/licenses/server -l /var/opt/keysight/licensing/log/license-
server.log -reuseaddr -z
[Install]
WantedBy=multi-user.target
```

- f. Execute the following commands:

```
sudo systemctl start keysight-lmgrd # to start this boot
sudo systemctl enable keysight-lmgrd.service # to start at subsequent boots
```
- g. Check the service status with:

```
systemctl status keysight-lmgrd.service
```

**Step 6: Reboot to test the new license server**

- a. Configure your client machines to get their licenses from the new license server, as diagrammed in [Setting Up Floating Licenses](#).
- b. Then, restart the server machine to test the automated startup of the license server manager. Note that it can take a few minutes for the license server manager to start up after the machine is rebooted.
- c. Once a few minutes have passed, check to make sure you can use the floating licenses on your client machines.

**Update an Existing License Server (Windows)**

This document assumes that you will be adding your new licenses to an existing floating license server (a dedicated machine), using the FlexNet tools.

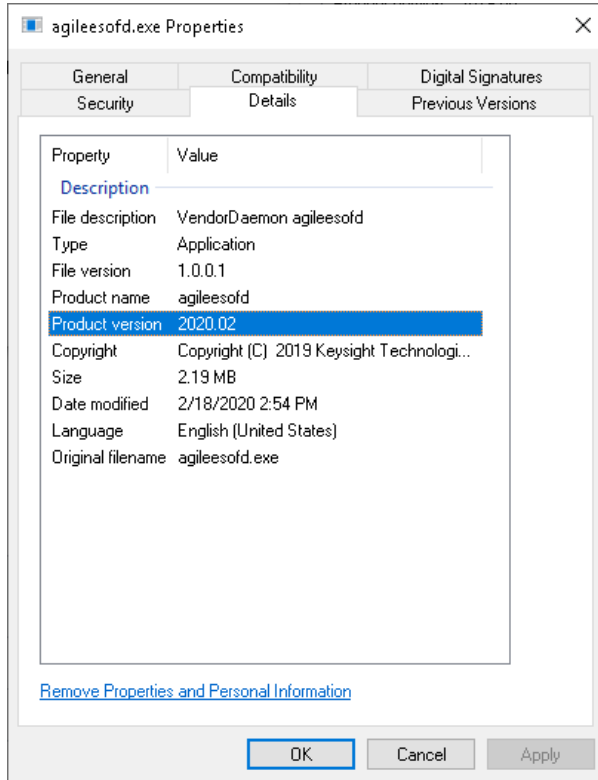
**Step 1: Determine your existing vendor daemon location and version**

- a. First, check to see whether there is already an *agileesofd* process running on your license server.
  - Run Task Manager to look for any *agileesofd* process. It may be listed as **VendorDaemon agileesofd**.

Name	PID	Status	User name	CPU	Memory (a...	UAC virtualizat...	Elevated	Command line
acrotray.exe	21572	Running	lauraj	00	1,652 K	Disabled	No	"C:\Program Files\Agilent\adci\acrotray.exe"
adclist.exe	21348	Running	lauraj	00	1,960 K	Enabled	No	"C:\Program Files\Agilent\adci\adclist.exe"
agileesofd.exe	5704	Running	LOCAL SE...	00	4,484 K	Not allowed	Yes	"C:\Program Files\Agilent\adci\agileesofd.exe -T"
AGMSvc.exe	4800	Running	SYSTEM	00	2,612 K	Not allowed	Yes	"C:\Program Files\Agilent\adci\AGMSvc.exe"
AGSSvc.exe	4792	Running	SYSTEM	00	2,652 K	Not allowed	Yes	"C:\Program Files\Agilent\adci\AGSSvc.exe"
armsvc.exe	4724	Running	SYSTEM	00	1,412 K	Not allowed	Yes	"C:\Program Files\Agilent\adci\armsvc.exe"
atp.exe	23780	Running	lauraj	00	38,348 K	Disabled	No	"C:\Users\lauraj\atp.exe"

- b. If there is no such process, skip to Step 3 below.
- c. If you find a running *agileesofd* process, determine the path to its executable as follows:
  - Right-click the process in Task Manager. Select **Properties**. The path is shown in the **Location** field.
- d. Take note of this path to use in the steps below.

- e. Determine the currently installed version of the *agileesofd* vendor daemon:
- In Task Manager, right-click *agileesofd.exe* and choose **Properties**. Select the **Details** tab and locate the **Product version**. (Note that the **Properties** dialog box does not refresh while it is open. Close the dialog box before you update the server, and then re-open it to check the results of the update.)

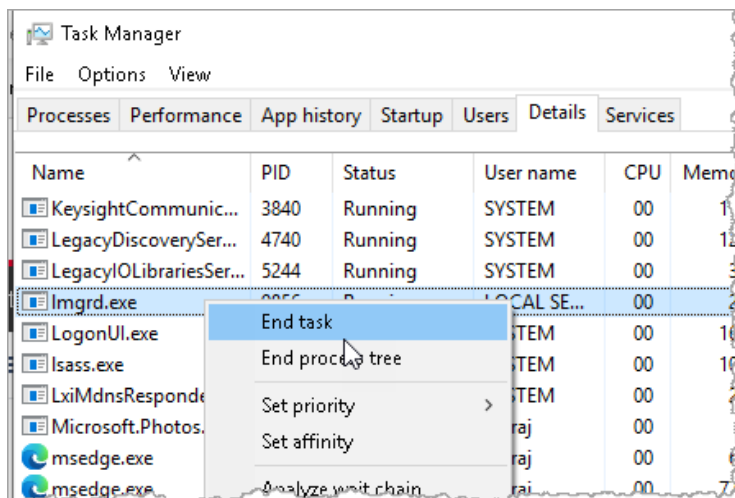


- Note that `agileesofd --version` does *not* give you the daemon version, only the FlexNet version.



**Step 2: Return all borrowed licenses and stop any existing server process**

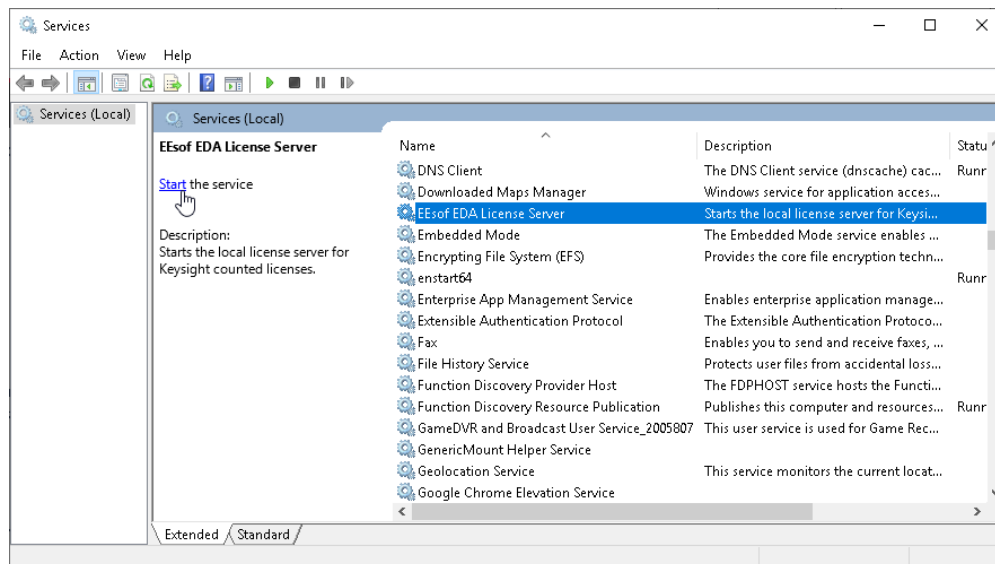
- a. **Important: Return all borrowed licenses** before stopping any existing server process.
- b. Stop or end any running *lmgrd* process. (This will automatically stop *agileesofd* also.)

**Step 3: If there is no existing agileesofd OR the version is not what is needed, install Keysight License Server on the license server machine**

- a. On your license server machine, open your web browser and navigate to <http://www.keysight.com/find/licenseserver>
- b. Download the latest server package for your platform.
- c. Extract/unzip the files, either:
  - If you have a license server already, install to the executable location from Step 1 above.
  - If you do not have an existing location, use *C:\Program Files\Common Files\Keysight\Licensing Daemon\Agileesofd*

**Step 4: Restart the license server manager**

To start the FlexNet license server manager (*lmgrd*) and vendor daemon (*agileesofd*), restart the Windows service (typically named **EEsof EDA License Server**).



## Update an Existing License Server (Linux)

This document assumes that you will be adding your new licenses to an existing floating license server (a dedicated machine), using the FlexNet tools.

### Step 1: Determine your existing vendor daemon location and version

- First, check to see whether there is already an *agileesofd* process running on your license server: `ps -ef | grep agileesofd`.
- If there is no such process, skip to Step 3 below.
- If you find a running *agileesofd* process, determine the path to its executable: `readlink -f /proc/<pid>/exe`
- Take note of this path to use in the steps below.
- Determine the currently installed version of the *agileesofd* vendor daemon:
  - `strings ./agileesofd | grep "^20[0-9][0-9].[0-9][0-9]$"`
  - Note that `agileesofd --version` does *not* give you the daemon version, only the FlexNet version.

### Step 2: Return all borrowed licenses and stop any existing server process

- Important: Return all borrowed licenses** before stopping any existing server process.
- Kill any running *lmgrd* process. (This will automatically kill *agileesofd* also.)

**Step 3: If there is no existing *agileesofd* OR the version is not what is needed, install Keysight License Server on the license server machine**

- a. On your license server machine, open your web browser and navigate to <http://www.keysight.com/find/licenseserver>
- b. Download the latest server package.
- c. Untar the files and save them:
  - If you have a license server already, save to the executable location from Step 1 above, or
  - If you do not have an existing location, use `/opt/keysight/licensing/agileesofd/`

**Step 4: Restart the license server manager**

Start the license server manager (*lmgrd*) and vendor daemon (*agileesofd*) on the machine to which the license is tied as follows:

- a. Change directory to the location of your server files (for example, `/opt/keysight/licensing/agileesofd`).
- b. Run the following command to start *lmgrd*:

```
./lmgrd -c <license file path> -l <license log file path>
```

where:

`<license file path>` specifies one or more full path names to license file(s) and/or folder(s) containing license files.

`<license log file path>` is the full path name to the debug log file.

## Migrating from a KLM 6 floating license server

Follow these steps if you have previously used a floating license server set up using KLM 6, and are moving those floating licenses on that server to the latest Keysight License Server:

1. Download the latest version of Keysight License Server from [Keysight License Server | Keysight](#)

- Download the server package for Windows 64-bit.

Keysight recommends using the most current version, which includes the most up-to-date bug fixes and security patches available.

Current Version Previous Versions

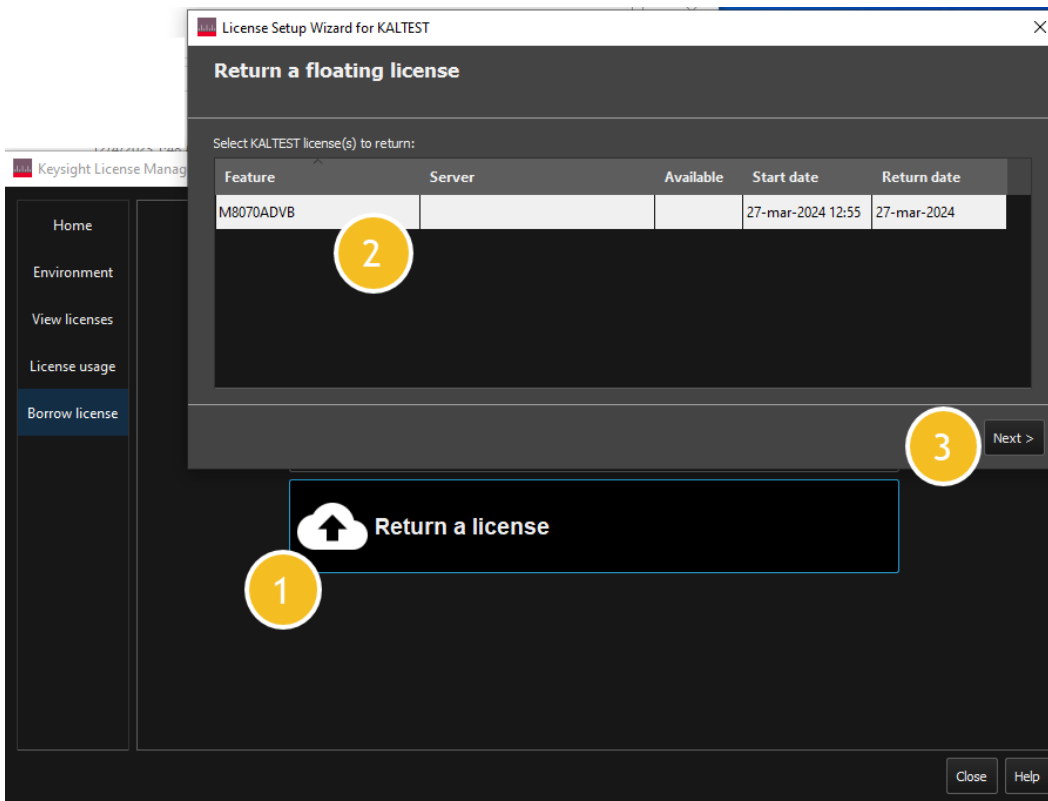
Release Date	Version	Version Description
2023-07-19	2023.03.23	Package contains agilesofd v2023.03.23, lmadmin v11.19.2.3, and version 11.19.2.3 of the lmttools, lmgrd, and lmutil files.

**How to Download**

Download

- Click the download button
- Unzip the compressed files and save them.

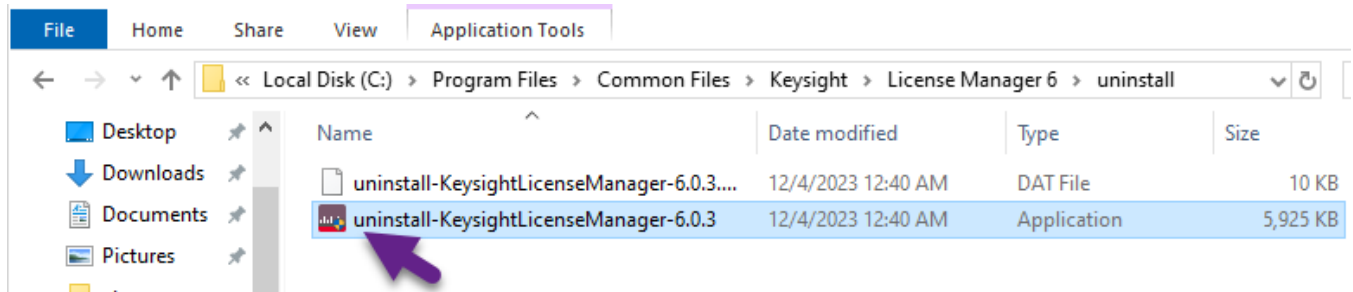
Return all borrowed licenses to the KLM 6 license server.



2. When you have returned all borrowed licenses, close KLM 6.

3.

Run the KLM 6 uninstaller:



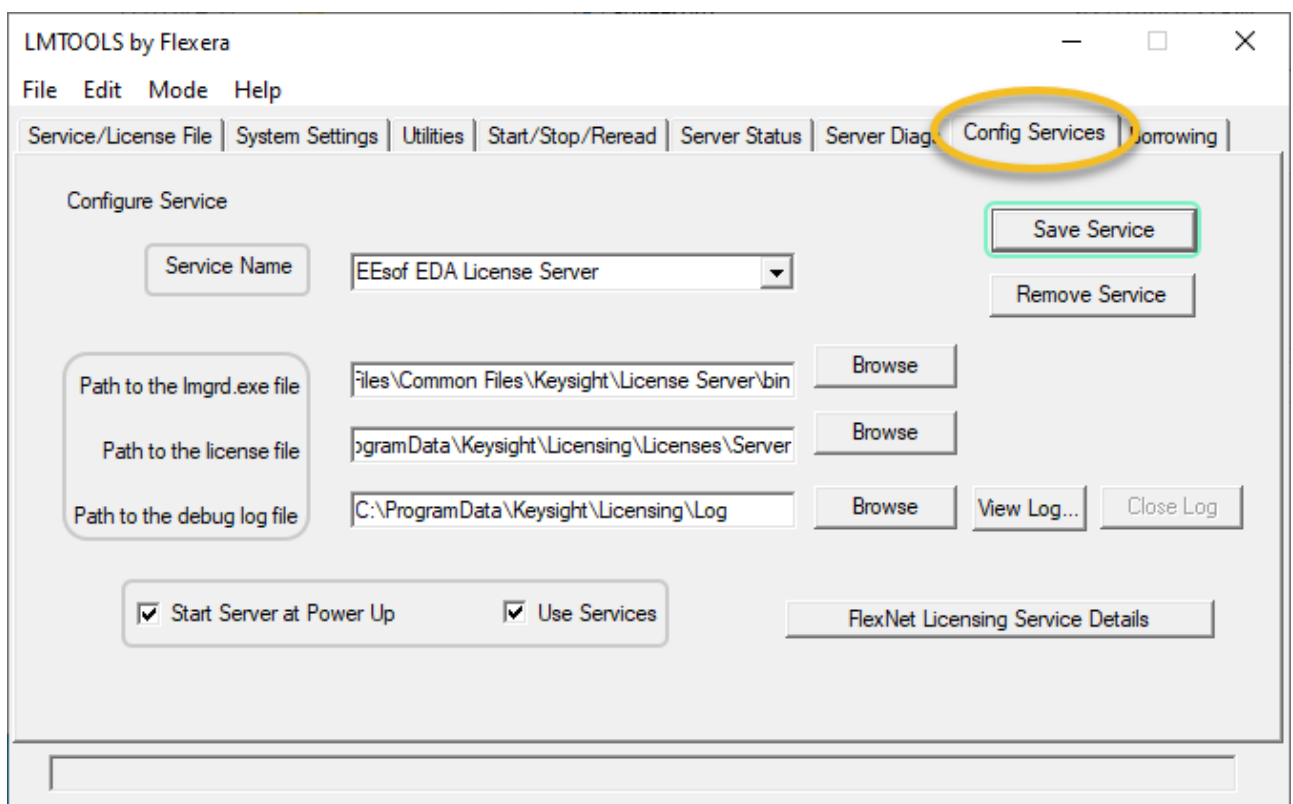
After the uninstall is complete, the Setup utility will offer to restart the machine. Click **Yes**.

4. Install the latest version of Keysight License Server on the server machine.

- Unpack the server package files to the executable location: *C:\Program Files\Common Files\Keysight\Licensing\License Server\bin*

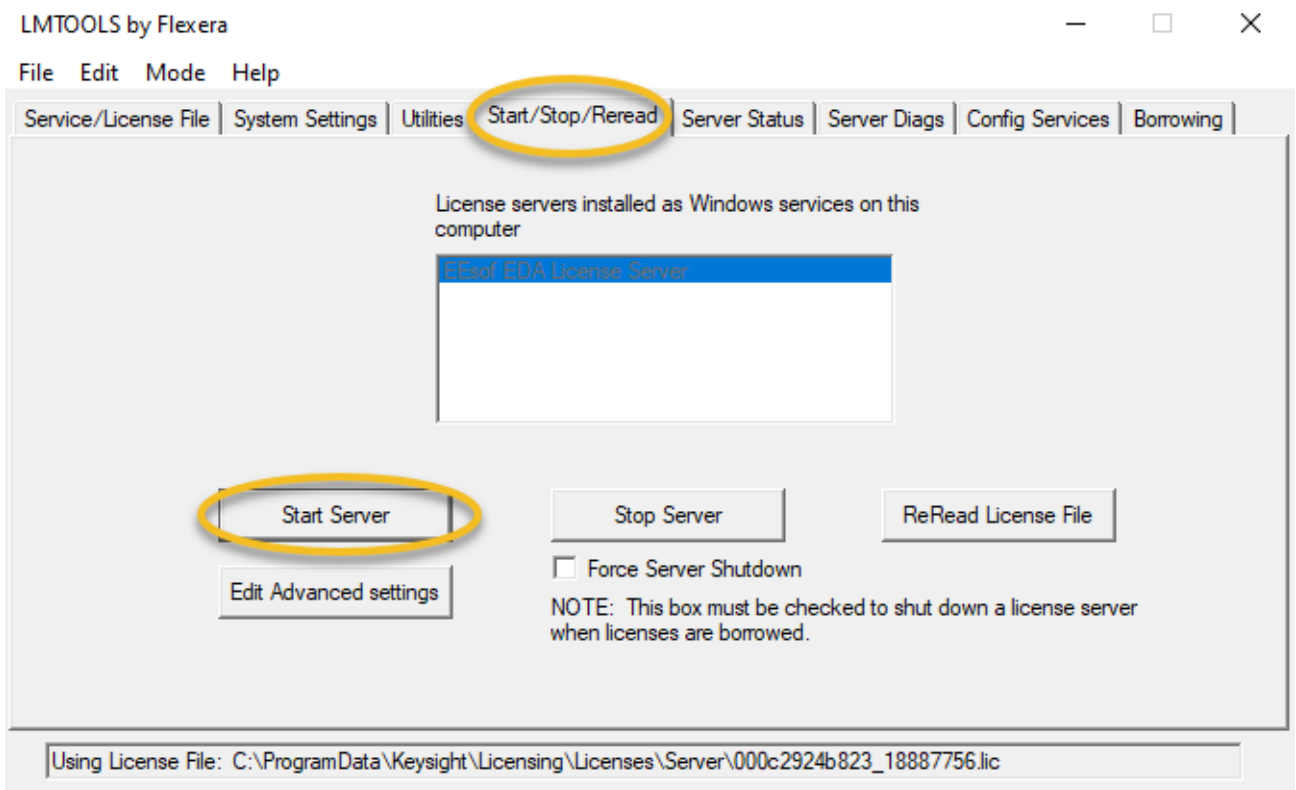
Set up the license service using LMTTOOLS (found in the \License Server\bin folder; run LMTTOOLS as Administrator).

From the **Config Services** tab:

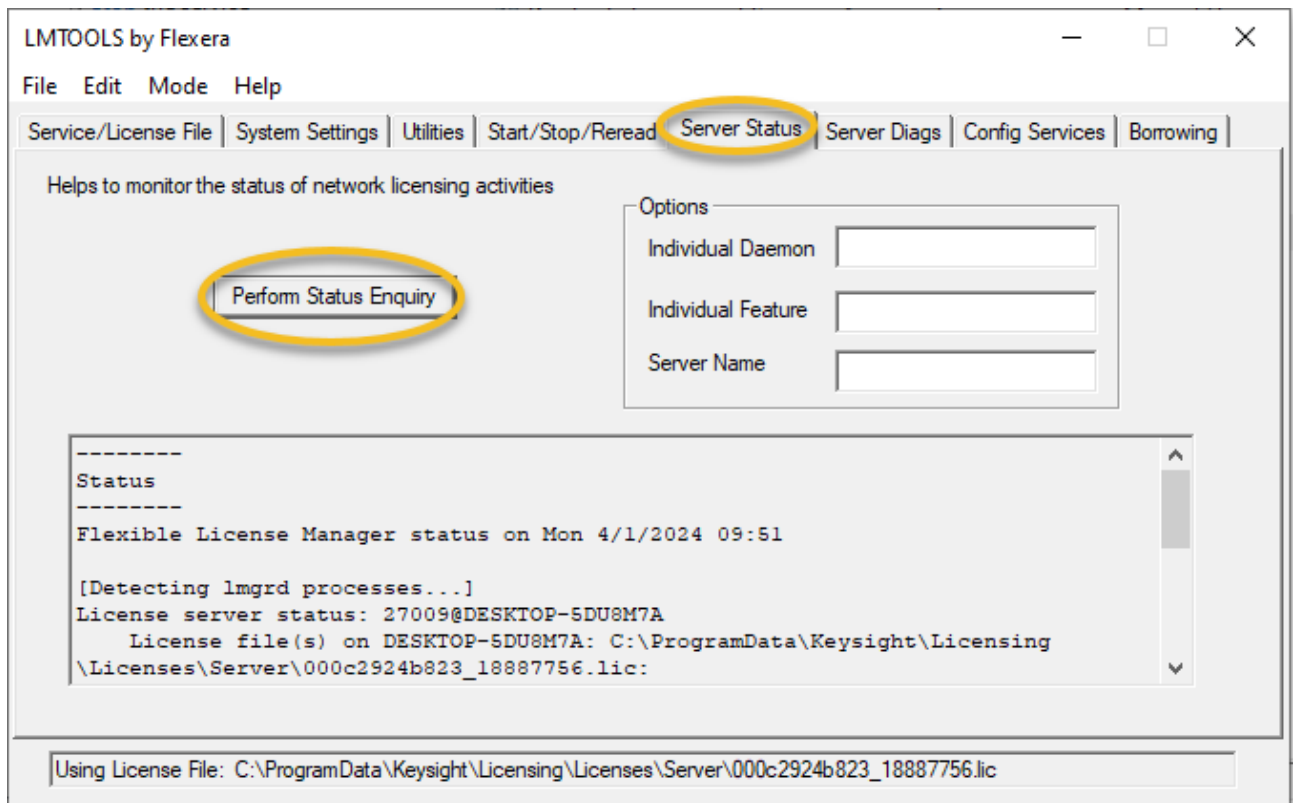


5.

6. Enter "EEsof EDA License Server" in the **Service Name** text field.
7. Set the paths to the **lmgrd.exe** file, the license file(s), and the debug log file.
  - a. To use the defaults, cut and paste the following paths into their respective entry fields.
    - i. Note that it may be necessary to create some of these folders before you can save the service.  
-----
    - ii. For the **lmgrd.exe** file: C:\Program Files\Common Files\Keysight\License Server\bin
    - iii. For licenses: C:\ProgramData\Keysight\Licensing\Licenses\Server
    - iv. For the debug log file: C:\ProgramData\Keysight\Licensing\Log  
-----
    - v. Select the **User Services** and **Start Server at Power Up** boxes.
    - vi. Click **Save Service**.
8. Select the **Start/Stop/Reread** tab, then click **Start Server** to start the service.



9. To check the server status, click **Perform Status Enquiry** in the **Server Status** tab.



10. If the server doesn't start, and the status message text doesn't supply enough information to point to the issue, refer to the *Keysight Licensing Administrator's Guide's* section on troubleshooting: [How to Troubleshoot Problems - Keysight Licensing Administrator's Guide - Confluence](#)

## License Managers

### NOTE

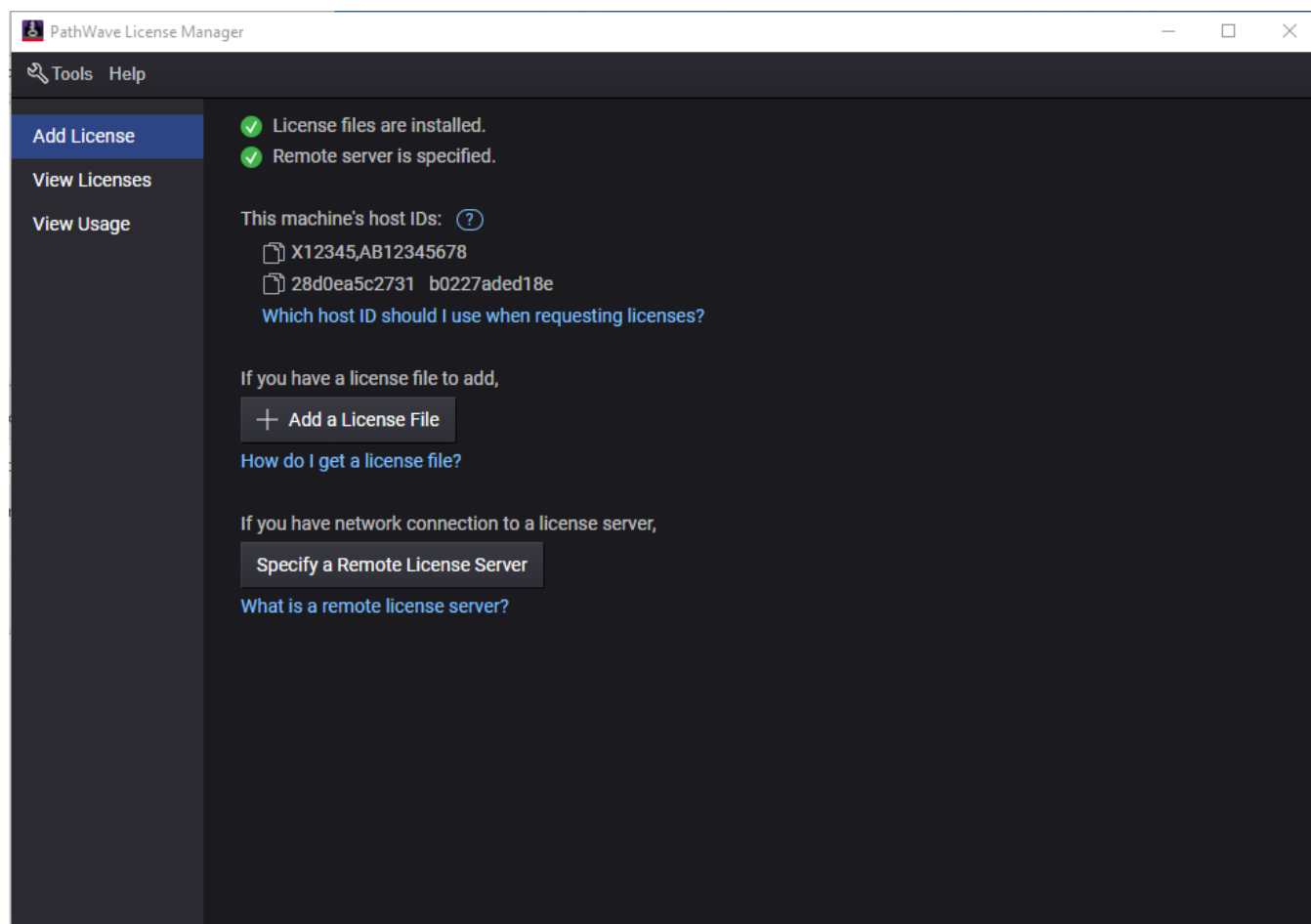
- If you have licenses located in **user-specific locations** (such as *C:\Users\fred\Desktop*), these licenses may not be accessible to the license service created by PathWave License Manager). Using the license manager provided with the appropriate product, **remove and reinstall such licenses** in a generally accessible location, such as *C:\Users\public*.
- When you install a new license manager, **do not remove old license manager(s) from your system**.

Over the years, Keysight has produced a number of license management tools. The three mentioned here are still in general circulation and may be necessary to manage your licenses.

Please refer to your Keysight product documentation to determine which of the following license management application(s) are appropriate for your product(s). In many cases, the appropriate license management application is included in the installation of your Keysight product, or is preinstalled on your Keysight instrument.

When you install a new product or product version, and that product installs a new license manager, it is not necessary nor advisable to remove old license manager(s) from your system. You may need them to manage your older licenses and removing them may cause conflicts. However, if you do remove a license manager, its licenses are not removed with it. Simply reinstall the license manager, using the download links listed below.

## PathWave License Manager



PathWave License Manager (PLM):

- Allows you to manage many types of Keysight licenses for a variety of software products and instruments.
- Also displays licenses installed with all of the other license managers shown on this page.



- Launches Keysight License Manager 5 when necessary to manage certain older licenses.
- Has functionally replaced Keysight License Manager 6.
- Is used for newer Keysight products of many types, such as PathWave FPGA, PathWave Test Sync Executive (beginning with version 2020 Update 1), and IoT Wireless Test Software.

Download PLM from <https://www.keysight.com/find/plm>.

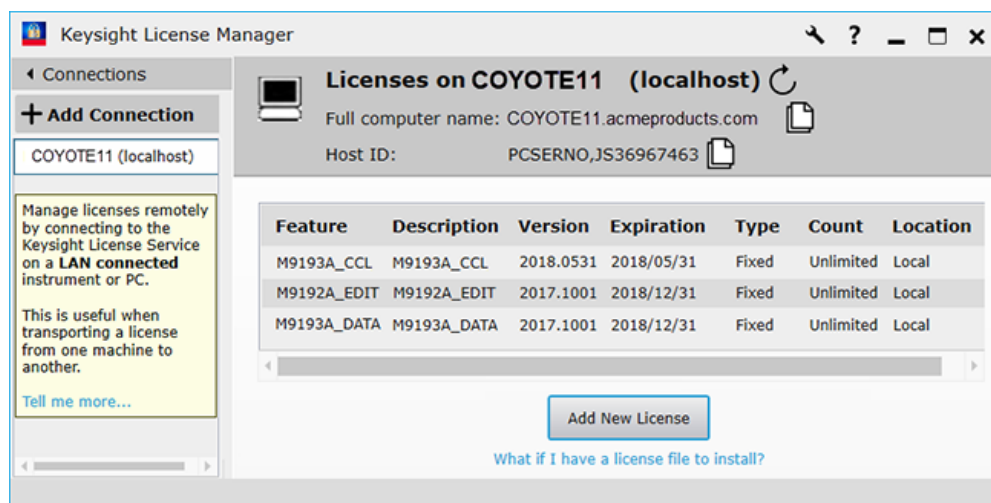
## Keysight License Manager 6

KLM6 Obsolescence

### NOTE

Keysight License Manager 6 has been functionally replaced by PathWave License Manager. Be aware that KLM6 installed an older version of the Keysight License Server files (*lmgrd* and *agileesofd*); it is not advisable to install Keysight License Manager 6 *after* you have installed a newer license manager such as PathWave License Manager.

## Keysight License Manager 5

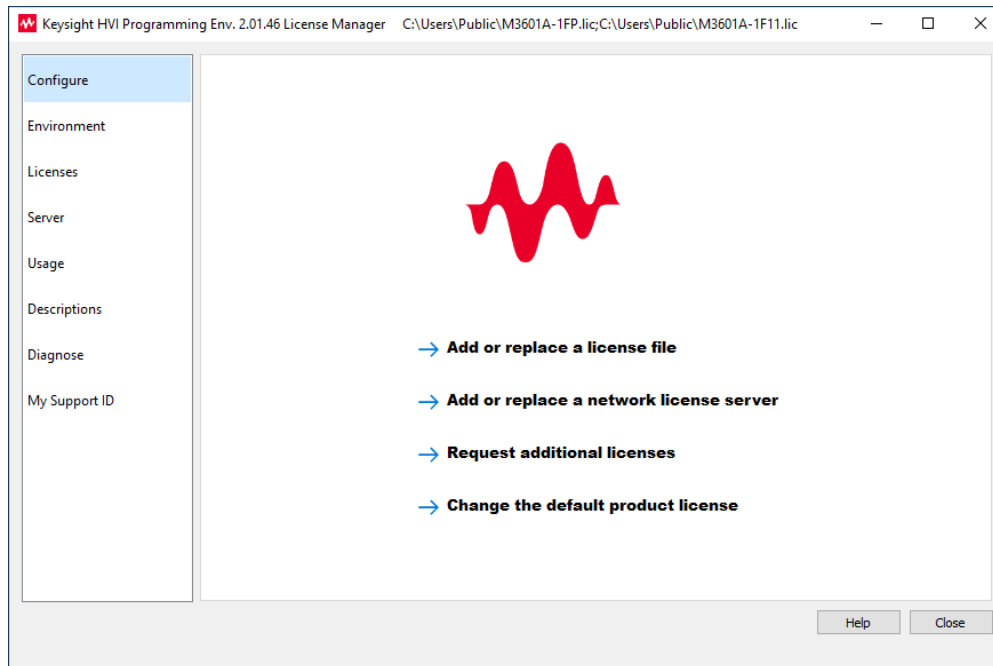


This license management application:

- Allows you to manage primarily node-locked and transportable licenses for a variety of software products and instruments.
- Is necessary to install and transport those licenses.
- Does not display licenses installed with other license managers.
- Is used for many test and measurement products, such as original BenchVue software, and for some instruments and firmware products.

Download Keysight License Manager 5 from [Keysight License Manager 5](#).

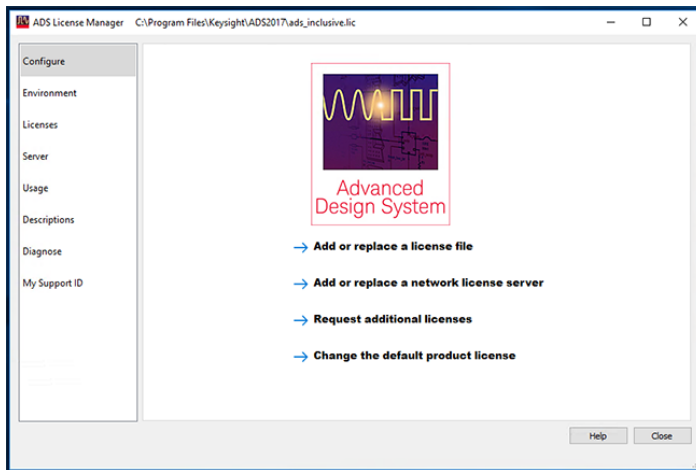
## Keysight Floating License Manager for Design Software Products



This license management application:

- Allows you to manage licenses primarily for EDA Design Software products.
- Displays some licenses installed with other license managers.
- Used for most Keysight EDA products and some other products, such as the M3601A Hard Virtual Instrument (HVI) Design Environment.
- May be installed as a product-customized license manager, for example **Keysight HVI Programming Env. 2.01.46 License Manager** in the image above, and **ADS License Manager** in the

image below (shown for comparison).



Download the Keysight Floating License Manager for EDA from <https://www.keysight.com/find/eesof-flexnet-downloads>.



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without notice.

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