FlexSim lmtools installation

Instructions for hosting your FlexSim licenses using lmtools

Rev. 20210319

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Introduction

FlexSim uses FlexNet Publisher by Flexera Software for license management. Flexera is a 3rd party vendor not affiliated with FlexSim Software Products, Inc.

This document guides you through the installation and basic configuration of lmtools, a FlexNet license server manager, on desktop or server versions of Windows.

Recommendation

For maximum compatibility and simplicity, FlexSim recommends using lmtools rather than lmadmin, especially if you are already using the same license server to host other FlexNet-enabled products such as MiniTab, MatLab, SolidWorks, AutoCad, 3D Studio Max, other Autodesk products, Arena, some Adobe products, etc.

While not recommended, FlexSim is also compatible with lmadmin. If you prefer lmadmin, please see our lmadmin installation guide at https://flexs.im/lmadmin. For more information on the difference between lmadmin and lmtools, please read Flexera's FAQ *lmadmin Migration*, available online at https://flexs.im/lmadmin-faq.

Pay attention to the details

You may have configured FlexNet-based licensing before. However, in most cases we have found that FlexSim's use of Trusted Storage based licensing is rare among FlexNet-enabled applications. In addition, FlexSim requires an updated version of the *FlexNet Licensing Service 64* which may be newer than the version you may already have installed.

Despite any previous familiarity you may have with FlexNet licensing, we *highly* encourage you to closely follow this installation guide. If you are having trouble, most likely you have skipped a step or missed something important or assumed you should do something that you shouldn't have, based on previous lmtools experience. The instructions in this document catch most problems.

While we recommend following these instructions first, users with additional needs can then explore Flexera's *FlexNet Publisher License Administration Guide* located at https://flexs.im/lm-fnp. There you can learn about other options available for your license server, and other principles of FlexNet licensing.

Where to get help

If you have any questions or problems, please search our Answers Community for possible solutions. There is a good chance someone else has already asked your question.

Still not finding what you're looking for? Submit a new question and we'll check it out. If you're including any confidential information, such as license codes, be sure to mark your question as private! You can also contact your local FlexSim distributor for live phone, web, or email help.

1. System requirements

Your license server should be on a stable, persistent system that is always on and always accessible via the same IP address or fully qualified domain name. A user's personal system is not a good license server, unless they are only serving licenses to themselves, in which case, please consider contacting your local FlexSim distributor to exchange for a standalone license.

Operating System

Hosting FlexSim licenses requires a currently supported version of Windows (desktop or server versions are supported). FlexSim and Flexera do not support Windows operating systems that have reached their end-of-life. See Microsoft guidance on product lifecycle.

You should perform all Microsoft Updates so that your operating system is fully patched prior to installing the license server software.

Server Hardware

If your license server hardware meets the specifications required for the chosen Microsoft OS, it will be adequate to run the license server software. Hosting licenses is generally NOT a demanding workload.

Please do not confuse these minimal license server hardware requirements with the different and more demanding system requirements for running FlexSim Simulation Software.

Cloud Hosting

Your license server could be hosted by a cloud provider or on premises, on a virtual machine, or a bare-metal OS.

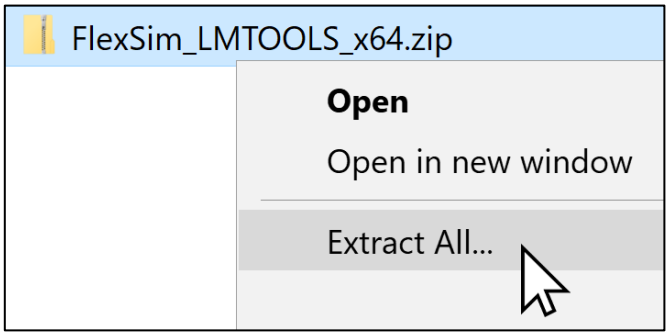
Keep in mind, your license server should be a stable, persistent server that client PCs can remain connected to. If your server setup works by creating and destroying new instances of a virtual machine each time you reboot, it is NOT suitable for use as a license server. You will lose your Trusted-Storage-based FlexSim licenses when the virtual machine is terminated.

Networking, firewalls, connectivity

For the software to remain licensed, it must maintain a constant network connection to your license server. The rest of the configuration is up to you. If you want to limit connections to the local network, or access the license server worldwide over a VPN, or have licenses accessible from the public Internet, these are all decisions you must make and configure your network and firewalls accordingly such that your FlexSim client PCs can maintain a constant connection to the license server. Guidance for ports that should be exposed through firewalls is given later on.

2. Download FlexSim's server tools

If you have not yet downloaded FlexSim's lmtools-related files, download them now at https://flexs.im/lmtools-download.



Once the download is complete, right-click the *.zip* archive and choose to *Extract All…* Save the extracted folder to a permanent location.

You can rename the extracted folder as you wish (except "flexsim", see NOTE below), but throughout these instructions, we will refer to the extracted folder as ***FlexSim_LMTOOLS*** and assume the full path C:\FlexSim_LMTOOLS.

NOTE: It is important that the permanent location for the extracted folder not have any parent folder named "FlexSim", "Flexsim", or "flexsim" (Windows filenames are not case sensitive). FlexNet licensing can encounter errors when attempting to start a license vendor daemon where the name of the vendor daemon ("flexsim" in our case) is found in its file path.

Examples of good paths:

- C:\FlexSim_LMTOOLS
- C:\licensing\vendors\FlexSim_LMTOOLS\
- C:\Program Data\FlexSim_License\

Examples of bad paths *(incompatible folder names bolded)*:

- C:**flexsim**\
- C:\licensing\vendors**flexsim**\
- C:\Program Data\licensing**FlexSim**\files\

3. FlexNet Licensing Service

FlexNet enabled products, including FlexSim, rely on a service called *FlexNet Licensing Service 64*.

FlexSim requires *FlexNet Licensing Service 64* version 11.14.0.1 or higher.

Is the FlexNet Licensing Service already installed?

There is a chance that you already have a version of *FlexNet Licensing Service 64* installed. Let's check:

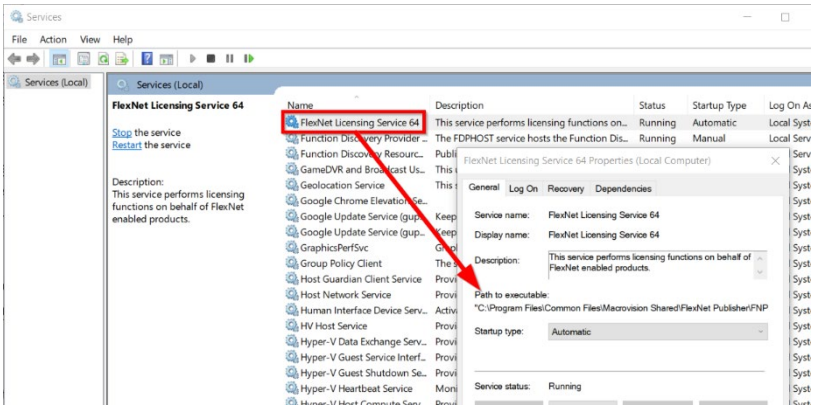
1. Click the Start button or press the Windows key, then type "Services" into the search box in the Start menu, and press Enter. Windows will search for and open Windows Services Manager.
2. If the list of services is not already sorted by name, click the *Name* header.
3. Scroll down to services beginning with *F*. Do you see a *FlexNet Licensing Service 64*?

If you find that *FlexNet Licensing Service 64* is not installed, or if you only have the 32-bit version (missing the '64' in the service name), skip below to the subheading Install the FlexNet Licensing Service.

Check the installed version of the FlexNet Licensing Service

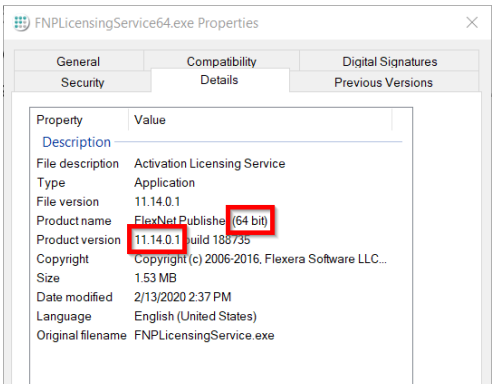
If *FlexNet Licensing Service 64* is already installed, we need to check its version number. As mentioned above, FlexSim requires version 11.14.0.1 or higher. If your *FlexNet Licensing Service 64* has a lower version number, you will need to remove the older service and upgrade. We'll get to those steps soon, but first, let's check what version is installed:

1. In Windows Services Manager, scroll down to the entry for *FlexNet Licensing Service 64*.
2. Double click the service name to open its Properties window.
3. In the middle of the *General* tab, find the *Path to executable*. Copy the path location from just after the opening double quote (") until the final backslash (\) before the filename. This is the path. It is probably something like *C:\Program Files\Common Files\Macrovision Shared\FlexNet Publisher*. With the path now copied to your clipboard, note the name of the .exe. It is probably *FNPLicensingService64.exe*.



4. Open a file explorer (⊞ + E) and paste the path into the Address bar. Hit Enter to go there.
5. Right click the .exe file that the service's Properties indicated is the service executable. Select *Properties* to view the .exe file's properties.
6. Navigate to the Properties window's *Details* tab.
7. The *Product version* should be version 11.14.0.1 or greater.

8. Make sure that the *Product name* indicates 64-bit.



If you found that you don't have the *FlexNet Licensing Service 64* installed, skip below to the heading Install the FlexNet Licensing Service.

If you found that your version number of *FlexNet Licensing Service 64* is lower than 11.14.0.1, you will need to upgrade the service.

Upgrade FlexNet Licensing Service

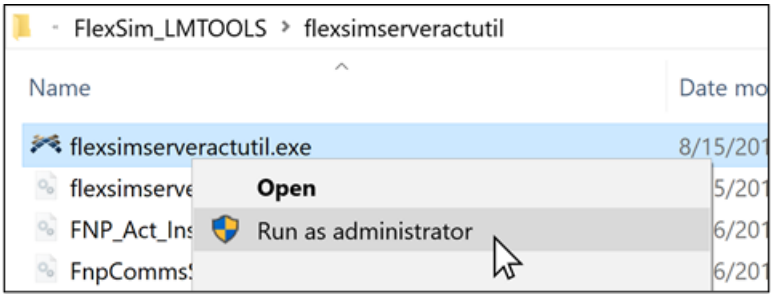
To upgrade your *FlexNet Licensing Service 64* to version 11.14.0.1, first complete the following:

1. In Windows Services Manager, right click *FlexNet Licensing Service 64* and choose *Stop*.
2. Navigate to the *Path to executable* shown in the service's properties. Rename the service's .exe file by putting an underscore (_) in front of the .exe's name.
3. Continue with the instructions below under the heading Install the FlexNet Licensing Service.

Install the FlexNet Licensing Service

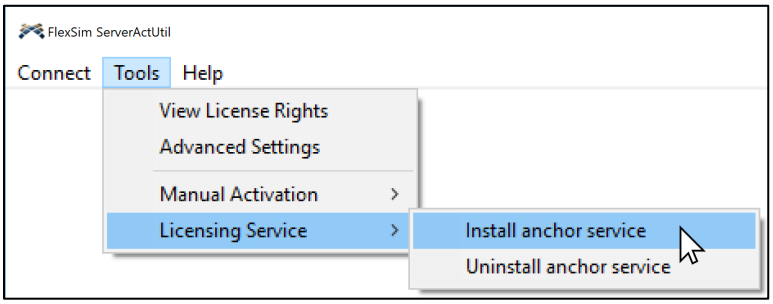
In your extracted download folder, navigate into **FlexSim_LMTOOLS\ flexsimserveractutil**.

Right-click *flexsimserveractutil.exe* and select *Run as administrator*.



Select the menu option *Tools > Licensing Service > Install anchor service*.

You should receive a confirmation that the *FlexNet Licensing Service 64* is now installed.



4. Licensing your server

FlexSim's licenses are Trusted-Storage-based, meaning your licenses need to be activated to your license server from FlexSim's online master license server.

The license activation process varies depending on whether your server has Internet connectivity. If your license server is NOT connected to the Internet, please skip to Manual license activation, below. Otherwise, continue to Internet-based license activation.

Internet-based license activation

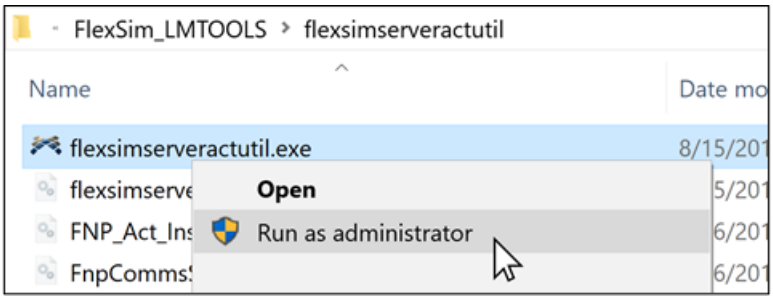
If your license server is connected to the Internet, *flexsimserveractutil.exe* will communicate with the following FlexSim servers via HTTP and HTTPS:

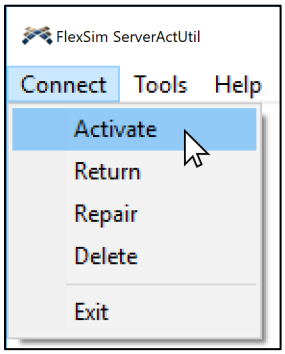
- license.flexsim.com
- www.flexsim.com
- sw1.flexsim.com

We will use *flexsimserveractutil.exe* to activate your FlexSim licenses over the Internet.

In your extracted download folder, navigate into **FlexSim_LMTOOLS\flexsimserveractutil**.

Right-click *flexsimserveractutil.exe* and select *Run as administrator*.



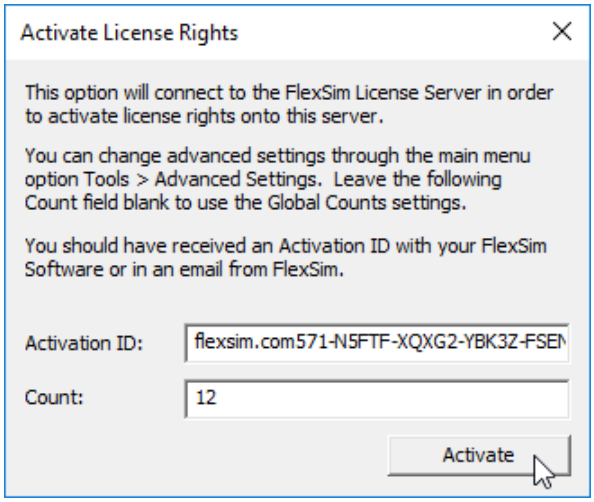


Select *Connect > Activate*.

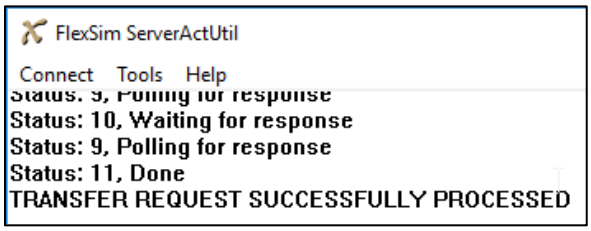
Enter the *Activation ID* and *Count* (seat quantity) for your license.

NOTE: If you have a 20-seat license but want to host 12 seats on this server and 8 seats somewhere else, you can do so. Simply enter *12* for the *Count* value.

Press *Activate*.



After a few seconds, and several status messages, you should receive an indication of success.



Repeat the steps above to activate any other license codes you are hosting on this license server.

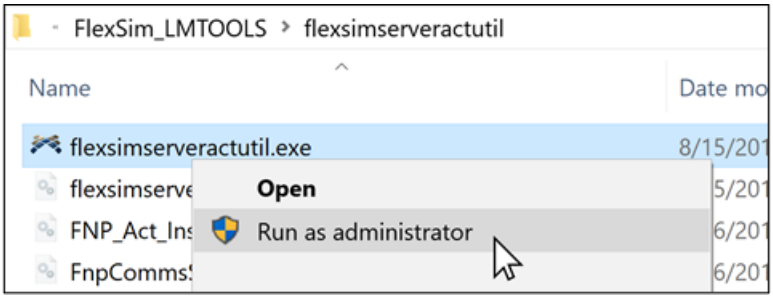
Manual license activation

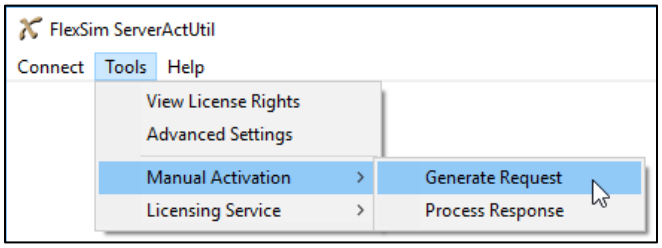
If your license server cannot connect to the Internet, you will need to activate manually. We'll use *flexsimserveractutil.exe* to generate and process XML requests and responses.

TRUSTED STORAGE NOTE: If this is the first time a license has been activated on this license server, an initial request/response communication is needed to configure your local license Trusted Storage. Follow the instructions below, but if you have multiple activation IDs to activate to your license server, only create a single XML activation request for just one of your activation IDs. After generating a single request, submitting it, downloading the response, transferring it back to your license server, and finally processing the response, your system will finally be ready to create activation requests. You will then go through the steps below *again* for the initial activation ID you used in configuring Trusted Storage, as well as any other activation IDs that you will activate to this same license server.

In your extracted download folder, navigate into **FlexSim_LMTOOLS\flexsimserveractutil**.

Right-click *flexsimserveractutil.exe* and select *Run as administrator*.

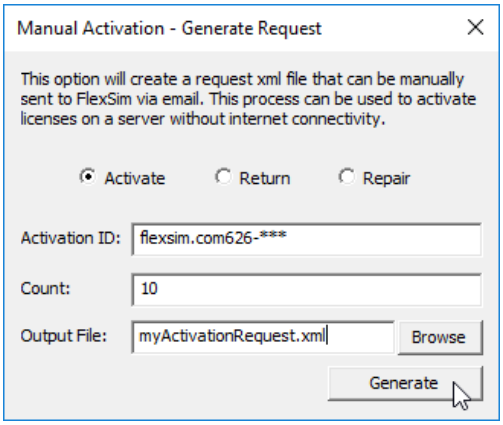




Select *Tools > Manual Activation > Generate Request*.

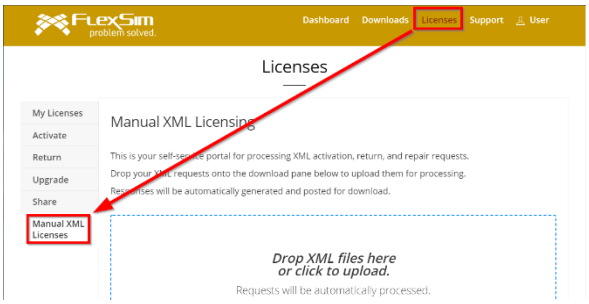
Enter the *Activation ID* and *Count* (seat quantity) for your license.

NOTE: If you have a 20-seat license but want to host 12 seats on this server and 8 seats somewhere else, you can do so. Simply enter *12* for the *Count* value.



Browse to select an *Output File* and press *Generate*. You now have an XML activation request. If you have already configured Trusted Storage for this license server, repeat to generate an activation request for all license codes you intend to activate here. If this is your first time through, you only need to generate a single request for Trusted Storage configuration. See *Trusted Storage Note* above for more details.

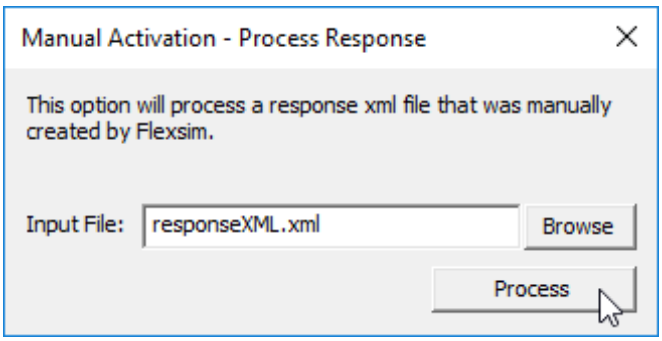
Copy the XML request files to a location with Internet access. Log in to your FlexSim Account. Use the top page navigation to select your *Licenses* page, then find the link for *Manual XML Licensing*.



Drag your XML requests onto the dropzone (alternatively you can click the dropzone and browse to a file to upload). Your XML request will be uploaded and processed. If there are any errors, you will get more information about the problem which you can use in contacting your local FlexSim representative for help.

If the XML request is successfully processed, you will be prompted to download the response XML file. Download your XML responses and transfer them back to your license server.

Process each response XML file by opening *flexsimserveractutil.exe* and going to *Tools > Manual Activation > Process Response*.

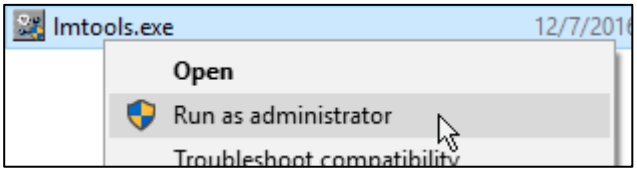


Browse to each response XML file and *Process*.

NOTE: If this is the first time a license has been activated on this license server, the initial request/response communication only configures your local Trusted Storage. See *Trusted Storage Note* above for more details.

5. Configure FlexSim's licensing service using lmtools

Navigate into your extracted download folder **FlexSim_LMTOOLS**. Right-click lmtools.exe and choose *Run as administrator*.

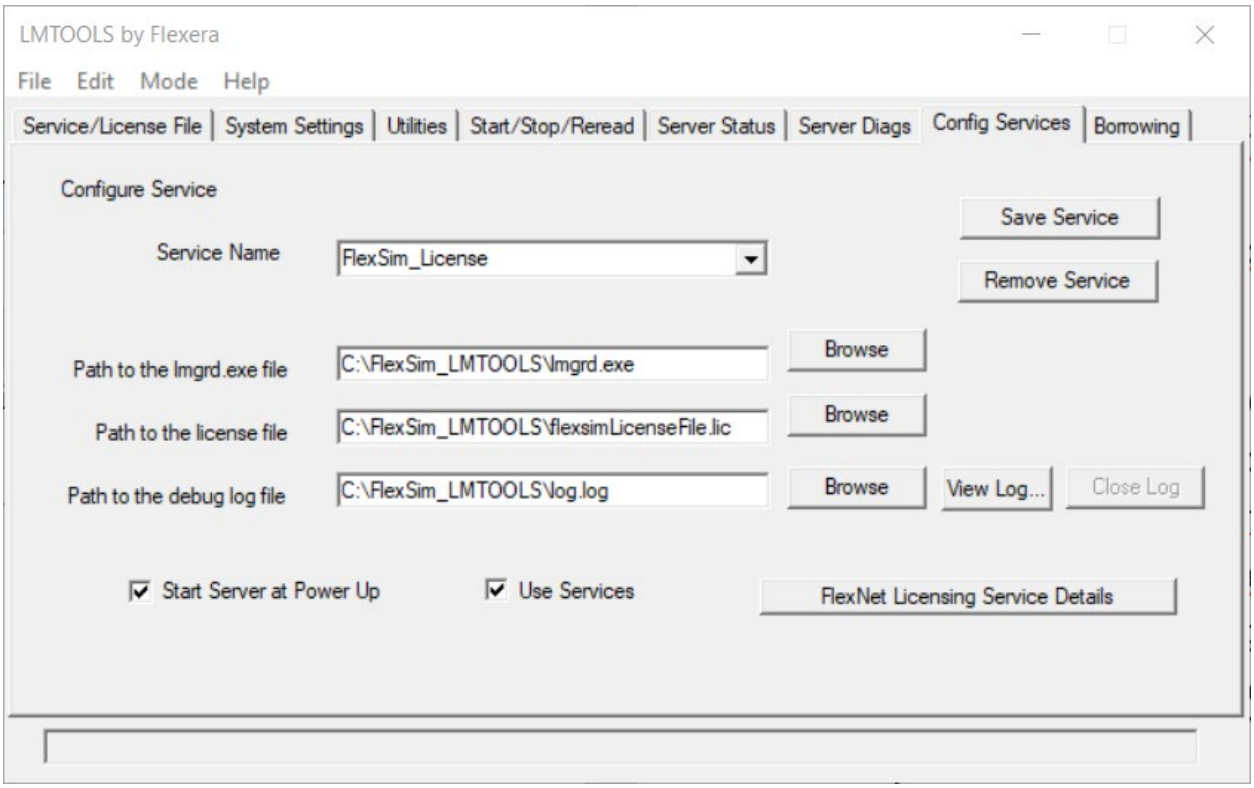


Go to the *Config Services* tab.

Create a new licensing service by typing ***FlexSim_License*** into the *Service Name* input field. The *Service Name* field looks like a dropdown selector, but you can click in it to type a new name.

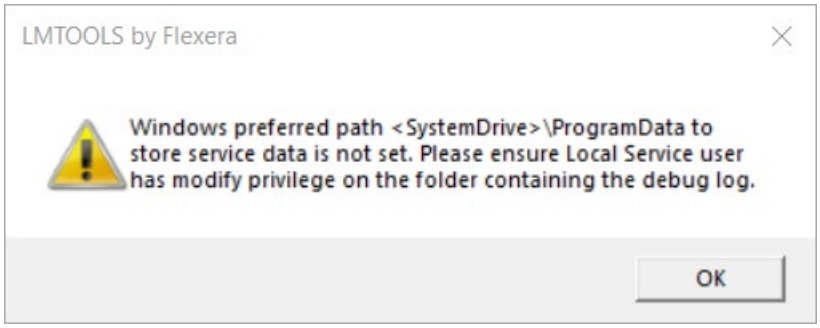
Use the *Browse* buttons to specify the paths to files (lmgrd.exe, flexsimLicenseFile.lic, log.log) that are also included in **FlexSim_LMTOOLS**.

Check *Use Services* and *Start Server at Power Up*.



Click the *Save Service* button. Confirm the save by choosing *Yes*.

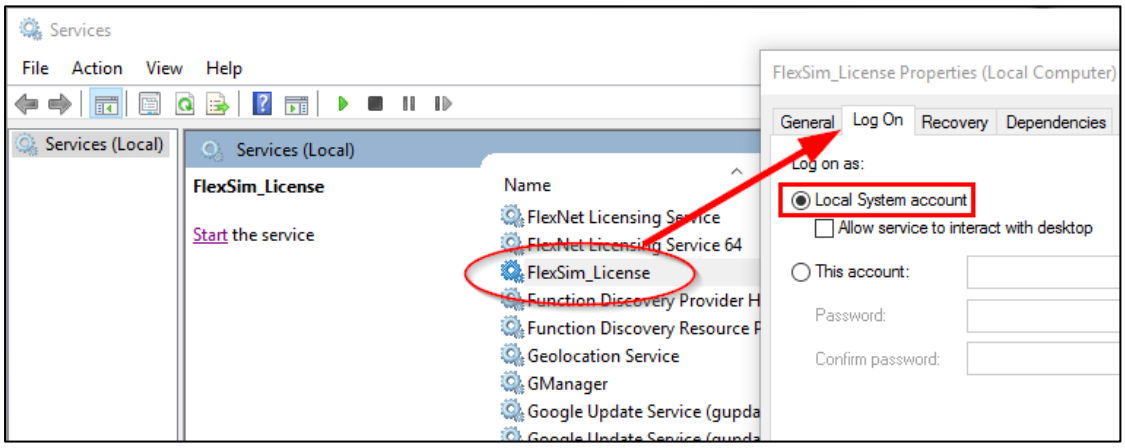
You may receive an error message regarding "Windows preferred path". This is normal and this message can be safely ignored.



6. Configure FlexSim_License service permissions

The new "FlexSim_License" service you created using lmtools needs to proper permissions:

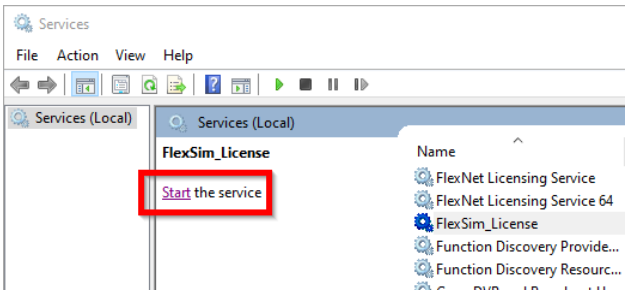
1. Click the Start button or press the Windows key, then type "Services" into the search box in the Start menu, and press Enter. Windows will search for and open Windows Services Manager.
2. Find "FlexSim_License" in the list of services. If it is missing from the list, see the section Troubleshooting the licensing service below.
3. Open the "FlexSim_License" service's Properties window by double-clicking its name.
4. Go to the *Log On* tab.
5. Choose the option to Log on as: *Local System account*.

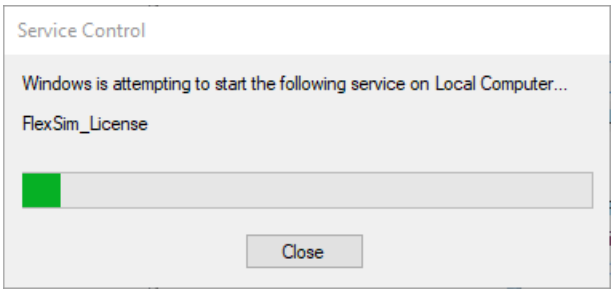


Press *OK* to close the *FlexSim_License Properties* window.

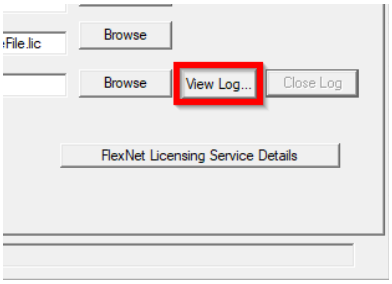
7. Start the FlexSim_License service

While still in Windows Services Manager, use the *Start* link to start your new FlexSim_License service.



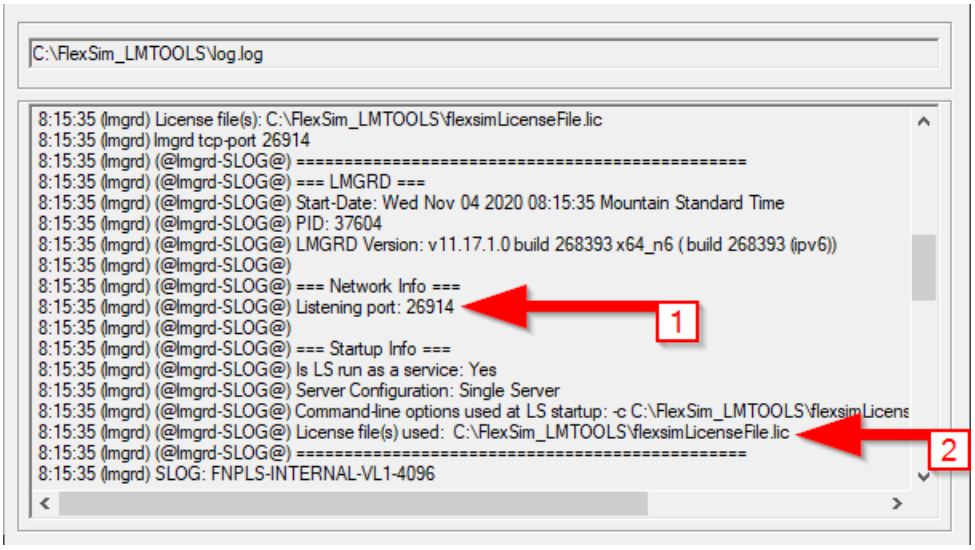


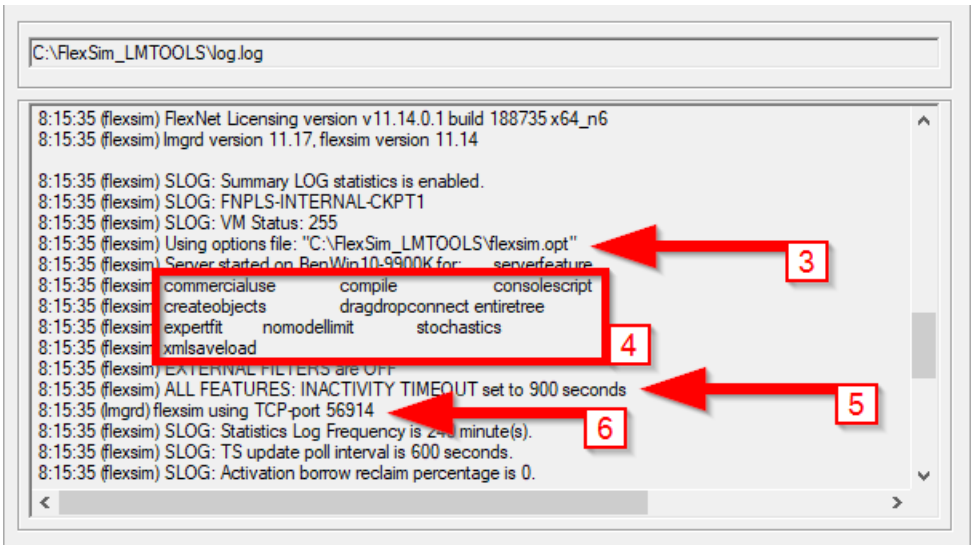
You should see a status bar showing the startup progress. The service usually starts in under a minute.



After the service is started, head back to lmtools to check the log. You can view the service log from the *Config Services* tab, click the *View Log...* button, located toward the lower right of the *Config Services* panel.

Examine the log:





You should find the following information in your log file

1. lmgrd.exe is listening on port 26914.
2. The flexsimLicenseFile.lic was found and loaded.
3. The flexsim.opt Options file was found and loaded.
4. A list of product features activated to Trusted Storage. Your feature set may differ somewhat from this example, depending on your license and product, but you should see several of the features above.
5. 900 seconds is the minimum timeout allowed by FlexNet, and we configure our installation to use this minimum value using the options file.
6. The flexsim.exe vendor daemon is listening on port 56914.

To close the log, press the *Close Log* button, toward the lower right of the *Config Services* panel in lmtools.

Troubleshooting the licensing service

If there is a problem with your server, such as:

- The *FlexSim_License* service is not listed as an installed service in Windows' services.
- The *FlexSim_License* service does not start manually.
- The *FlexSim_License* service does not start up automatically when the computer restarts.

please check the following:

- You ran lmtools as a user with admin rights, and right clicked the program to choose *Run as Administrator*.
- On the *Config Services* tab, you checked the boxes *Use Services* and *Start Server at Power Up.*
- There isn't already a process running or service installed named *FlexSim_License*.
- lmgrd.exe, flexsim.exe, and all other files downloaded together with them are in the same folder, and in a file path that does not contain a folder named "flexsim" (case insensitive).
- You don't have a port conflict. See Ports and firewall considerations below for more details.
- The *FlexSim_License* service is set to run as an account with proper permissions. It's possible that the *Local System Account* setting specified in Configure FlexSim_License service permissions above does not have adequate permissions, and you will need to direct the service to run under a different account. Work with your server administrator or IT department to determine an account with the proper permissions to run your license service.

8. Ports and firewall considerations

Default port numbers

FlexSim uses the following default port numbers for lmgrd.exe and flexsim.exe:

- 26914 *(lmgrd.exe)*
- 56914 *(flexsim.exe)*

These port numbers are specified in the license file you used when configuring the FlexSim_License service (**FlexSim_LMTOOLS\flexsimLicenseFile.lic**).

Custom port numbers

You can edit the .lic file to change these port numbers to any free, valid port numbers you desire. While not recommended, you can also remove the port numbers (and the "port=") from the .lic file to allow the *FlexNet Licensing Service* to auto-assign port numbers. We do not recommend auto-assigned port numbers since the *FlexNet Licensing Service* could auto-assign new, different port numbers when the FlexSim_License service is restarted. This can make it more difficult to maintain the firewall exceptions needed for the server to communicate properly with client PCs.

Resolving port conflicts

If your FlexSim_License service has trouble starting or properly hosting licenses, or if other licensing services fail after starting FlexSim_License, you could have a port conflict.

You could try specifying your own custom ports as described above. This is a good solution if you know what port numbers are in use with existing services and can choose unused, available port numbers.

If you're not sure what port numbers to try, you could allow FlexNet to auto-assign port numbers itself – it tries to find and use free ports, though it isn't foolproof.

To allow FlexNet to auto-assign port numbers, remove the port numbers (and the "port=") from the .lic file. Upon successfully (re)starting your *FlexSim_License* service, you can check the log file (press the *View Log…* button on lmtools' *Config Services* tab) to see what ports were auto assigned.

If everything works, we suggest that you take the port numbers automatically assigned by FlexNet and hardcode them into your license file. This way you can maintain static exceptions more easily in your firewall.

After entering new port numbers into your .lic file, be sure to (re)start the *FlexSim_License* service.

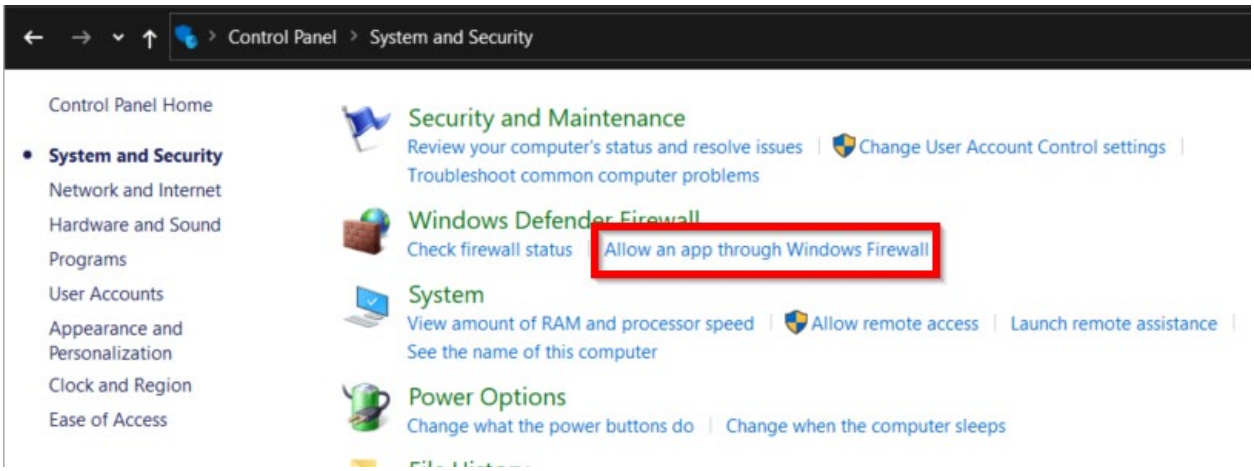
Configure firewall exceptions

Your license server will communicate with client PCs over ports 26914 (lmgrd.exe) and 56914 (flexsim.exe) (or whatever custom port numbers you may have chosen). Any firewalls will need exceptions added to allow the server to have inbound and outbound communication to both of those programs across both of those ports.

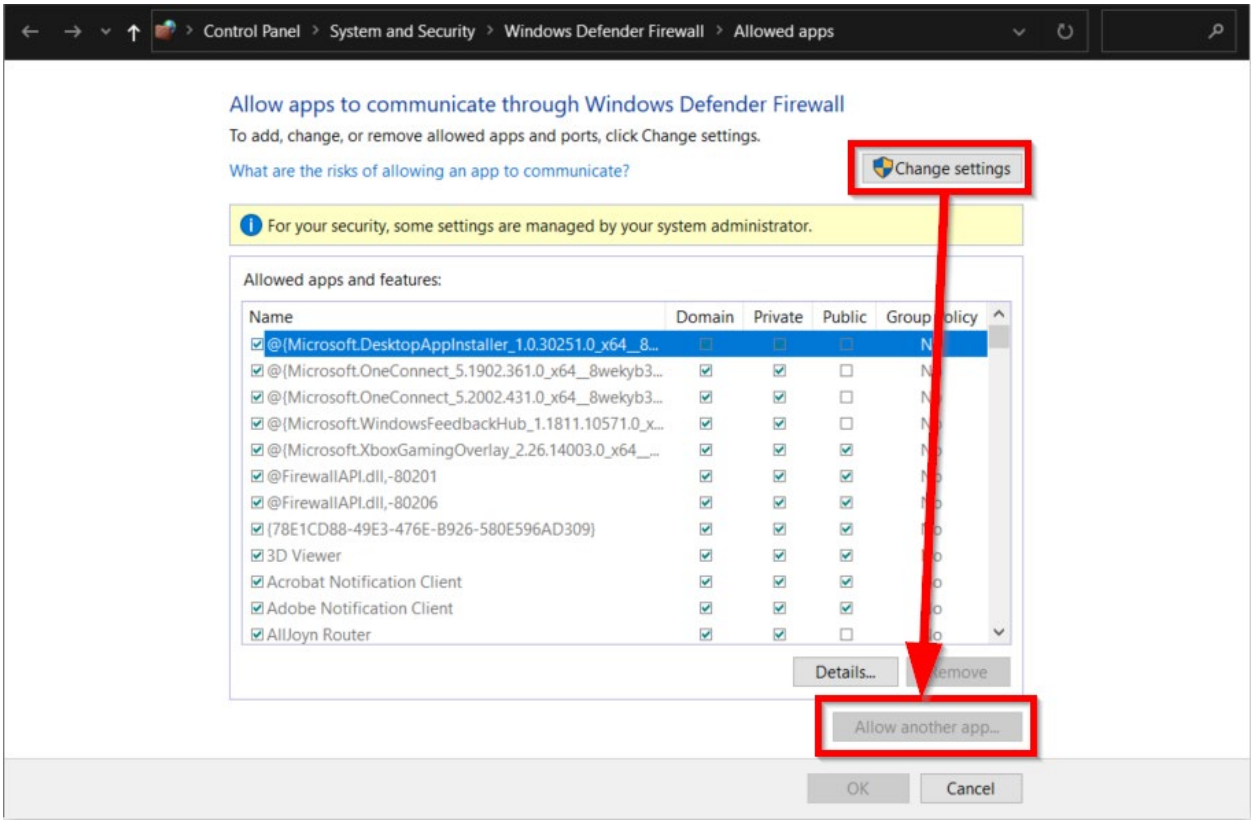
The following example shows how to allow lmgrd.exe (26914) and flexsim.exe (56914) through your firewall by application, rather than by port number, using Windows 10.

Click the Start button or press the Windows key, then type “Control Panel” into the search box in the Start menu, and press Enter. Windows will search for and open the Control Panel application.

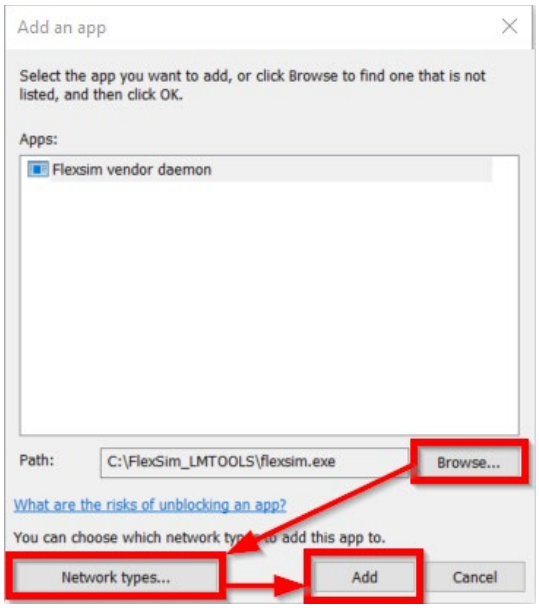
From the Control Panel, choose *System and Security*, then under the *Windows Defender Firewall* heading, choose *Allow an app through Windows Firewall*.



Click the *Change Settings* button, then the *Allow another app…* button.



In the *Add an app* window that opens, click the *Browse…* button. Navigate to **FlexSim_LMTOOLS** and double click *flexsim.exe* to choose the file.



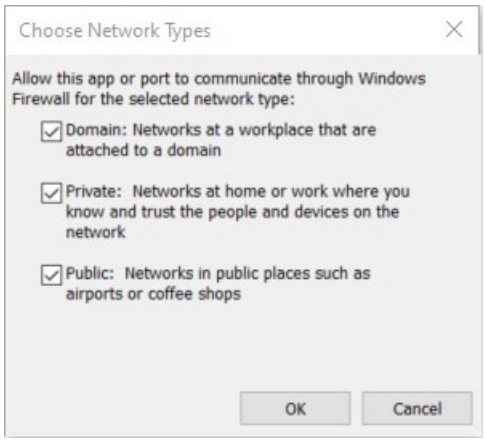
Click the *Network types…* button.

Check the boxes for the various network types that the firewall should allow. We recommend allowing your FlexNet licensing to communicate across all network types. You may need to contact your server or network administrators to determine what will be best for your specific licensing scenario.

Click *Okay* to close the *Choose Network Types* window.

Click the *Add* button.

Repeat the steps above for lmgrd.exe:



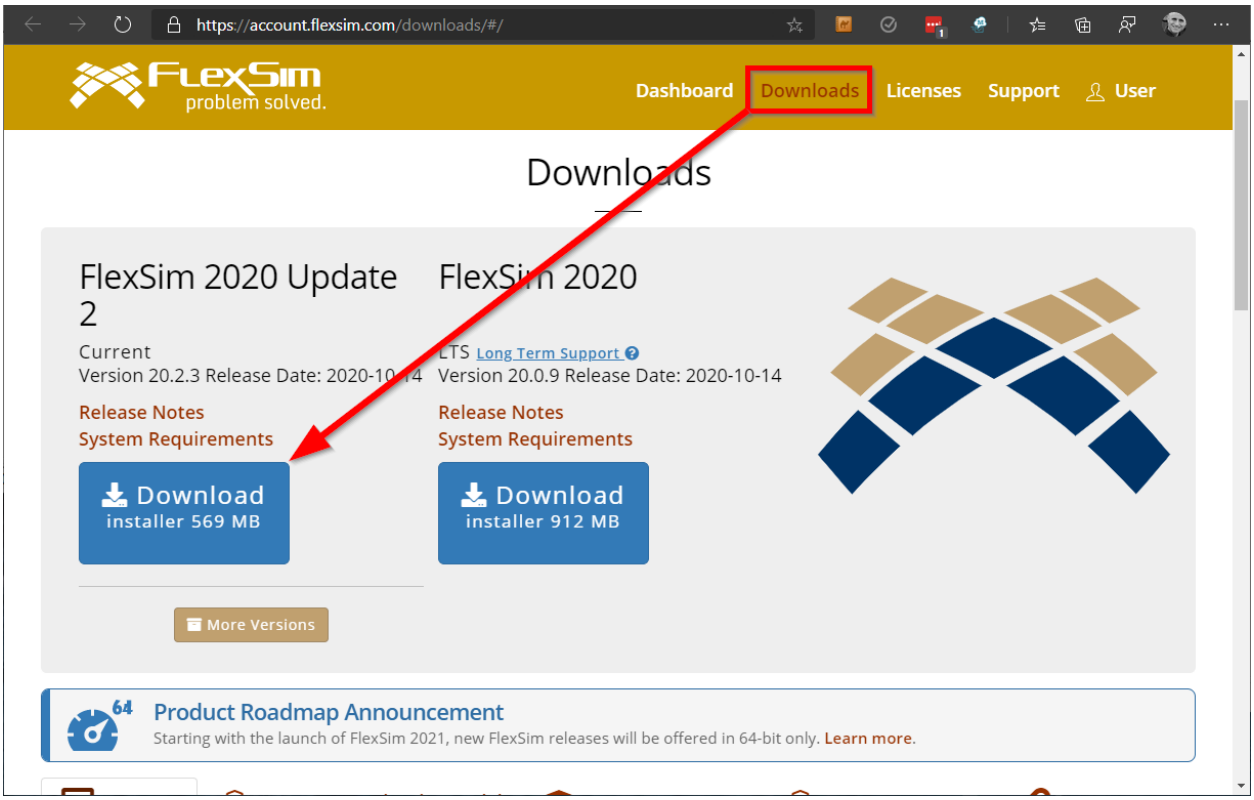
1. Click the *Allow another app…* button.
2. *Browse…* to **FlexSim_LMTOOLS** and double click *lmgrd.exe*.
3. Click *Network types…* and choose the appropriate networks to allow access to *lmgrd.exe*. These should be set to the same settings chosen for *flexsim.exe*, and it is usually best to allow over all network types - domain, private, and public.
4. Click the *Add* button.

Click *OK* to close the Control Panel.

9. Activate client PCs

Your server's address (IP address or fully qualified domain name) and FlexSim_License port numbers are needed to configure your client PCs.

With your server address and port numbers ready, download and install FlexSim software on a client PC. Software installers are found on your FlexSim Account's *Downloads* page.



A FlexSim license may not work with the latest version. If maintenance is current, the license can be upgraded for use with the latest version. Otherwise, you will need to install an older version of FlexSim for use on your client PCs. For a detailed explanation of what software version is most appropriate for your license, please see the document *FlexSim Version Numbering*, at https://flexs.im/versions.

For guidance upgrading your license, please see https://flexs.im/lm-upgrade.

After installing FlexSim software, configure it to use your license server. Client PC license configuration differs based on two distinct use cases:

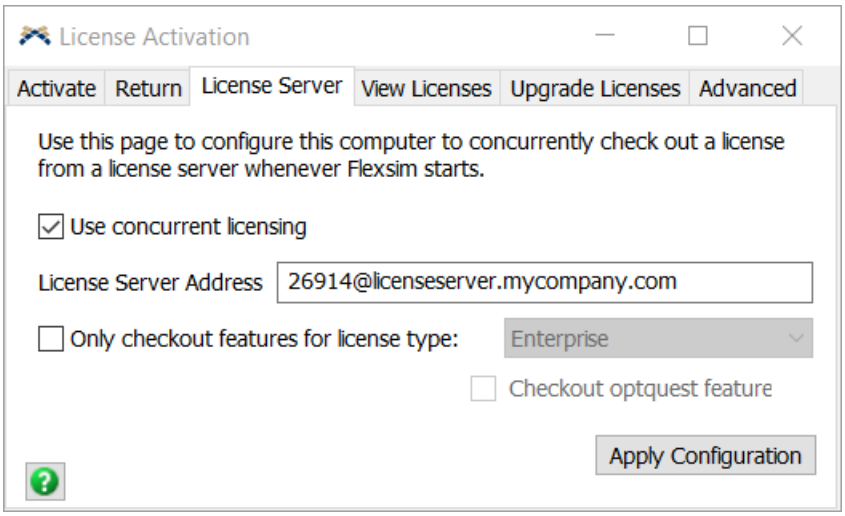
- Single-user client PCs
- Multi-user client PCs

Licensing a single-user client PC

Often a client PC is used by a single user who should have access to change license settings. The following license configuration saves settings to the user's Windows profile, so licensing is saved on a per-user basis and should be completed in advance for each FlexSim user on this client PC.

To license an individual Windows user, do the following while logged into Windows as that user:

1. Open FlexSim software on the client PC by right clicking the program icon and choosing *Run as Administrator*. You will not normally need to start FlexSim under elevated privileges but licensing the PC can sometimes require higher permissions.
2. Go to the software's main menu and select *Help > License Activation*.
3. Select the *License Server* tab.
4. Check *Use concurrent licensing*.
5. Enter the *License Server Address* using the form ***port@host***, where *host* is an IP address or fully qualified domain name. For example, if your license server is on IP address 10.0.0.135:
   a. If you used FlexSim's default lmgrd port number, enter ***26914@10.0.0.135***.
   b. If you specified a custom port for lmgrd.exe, be sure to include that port number in your *License Server Address*. For example, if you entered 27500 as your custom port number, you should enter ***27500@10.0.0.135***.



6. Click *Apply Configuration*.
7. Verify that the client PC can retrieve a license from your server:
   a. In lmtools logs (Config Services > View Log…), you should see that a seat is in use.
   b. Within FlexSim software on the client PC, go to the main menu, *Help > About FlexSim*, where you should see the activated license type.

Licensing a multi-user client PC

The previous method, licensing a single-user client PC, saves client PC license settings to the user's Windows profile, so licensing is saved on a per-user basis. In cases where the exact number or identity of PC users is not predetermined, such as in a university computer lab, it is impractical to license users individually in this manner.

Instead you can use a license file on the client PC to license FlexSim software generally for any user of the PC.

Copy the flexsimLicenseFile.lic file currently in use on your license server and described in the sections above, located at **FlexSim_LMTOOLS\flexsimLicenseFile.lic**. This .lic file should already contain any port customizations. Keep this copy separately from the folders used to configure your FlexSim_License service.

In your copied .lic file, change *this_host* on line 1 to the IP address or fully qualified domain name of your license server.

After installing FlexSim software on a client PC, this slightly modified .lic file should be copied into FlexSim's installation directory in the following location:

C:\Program Files\FlexSim <version>\program

Your exact folder path could differ based on custom installation locations or FlexSim version, but it should be placed into FlexSim's **program** folder.

10. Troubleshooting client-server licensing problems

If your client PC can't get a license from the server, one or more of these issues could be the problem. Please review each of these troubleshooting suggestions before contacting FlexSim for support.

After reviewing the troubleshooting steps below, if you have further questions or problems, please search our Answers Community for possible solutions. There is a good chance someone else has already asked your question.

Still not finding what you're looking for? Submit a new question and we'll check it out. If you're including any confidential information, such as license codes, be sure to mark your question as private! You can also contact your local FlexSim distributor for live phone, web, or email help.

Server configuration or license issues

- **SERVER CONFIGURATION** - Double check that your server is configured properly. When viewing your FlexSim_License service's log file you should see items described above in Start the FlexSim_License service. If no features are listed, or port numbers are different than what was expected, please revisit this document from the beginning. Carefully read and execute each step of the instructions to make sure that you have properly configured your license server.

- **VERSION OR PRODUCT MISMATCH** –Your actual license, activated to your server using flexsimseveractutil.exe, must have a version the same or greater than the software's version number. Your license is also for a specific product (FlexSim vs FlexSim Healthcare vs FlexTerm, etc.). See the document *FlexSim Version Numbering*, online at https://flexs.im/versions, for more information regarding FlexSim versioning and how it relates to licensing.

- **SEATS ALL IN USE** – If your FlexSim client software is not obtaining a license from the server, it's possible that all seats are already in use on other client PCs. Check the log files in lmtools to determine where your seats are currently in use.

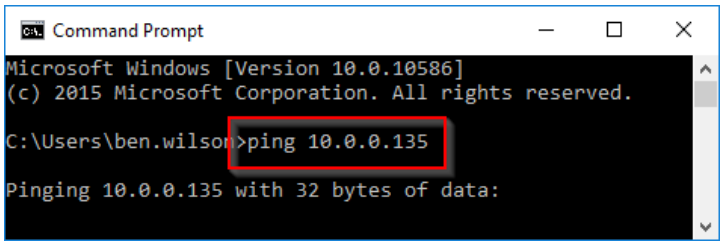
Client-server connectivity

These troubleshooting tips deal with the connection between the client PC and the license server. Even if you successfully establish connectivity, remember that server configuration or license issues can also keep a client PC from becoming licensed.

- **SERVER FIREWALL** – Did you allow both lmgrd.exe and flexsim.exe through the server's firewall, as outlined above in the section Configure firewall exceptions?

- **PORT & ADDRESS** – Double check the port number and server address used in activating licenses on your client PC. Make sure they match the port number on the first line of the flexsimLicenseFile.lic license file used in configuring the FlexSim_License service in lmtools.

- **VERIFY CONNECTIVITY - BASIC** - On the client PC, click the Start button or press the Windows key, then type “cmd” into the search box in the Start menu, and press Enter. Windows will search for and open the Command Prompt. From the command prompt, enter *ping [server name or IP address]*. For example, if your license server has a local IP address of 10.0.0.135, then type on the command line *ping 10.0.0.135*. If you are referencing your license server by name in FlexSim software’s *License Activation* interface, use the same fully qualified domain name here instead of the IP address:



  If your client PC receives a response from your license server, then the server is visible across the network, by name or IP address, from the client PC.

- **VERIFY CONNECTIVITY - ADVANCED** - Use telnet to determine if the client PC can communicate with the license server over the ports specified in the .lic file. Tutorial at https://flexs.im/telnet.

- **FIREWALL ISSUE** - A connection issue could be caused by a firewall configuration problem on the client PC, on the license server, or on some network appliance in between. Disable the firewall on the client PC. If nothing changes, also disable the firewall on the license server. If this fixes the issue, work with your network administrator to set up the correct firewall rules. Remember to reactivate your firewalls after this experiment. Reference Port and firewall considerations as necessary.

- **ANTI-VIRUS ISSUE** - Some anti-virus solutions will block application communications. Disable anti-virus software on the client PC. If nothing changes, also disable anti-virus on the server. If this fixes the issue, work with your IT administrator to modify your anti-virus settings. Remember to reactivate your anti-virus software after this experiment.

- **GENERAL NETWORK SETTINGS** - The network may have settings, topology, filtering, etc. that affects the client PC’s ability to communicate with the license server. Please work with your network administrator to make sure the client PC can communicate with the license server across your network using both port numbers specified in the flexsimLicenseFile.lic file.