License Management Software User's Guide

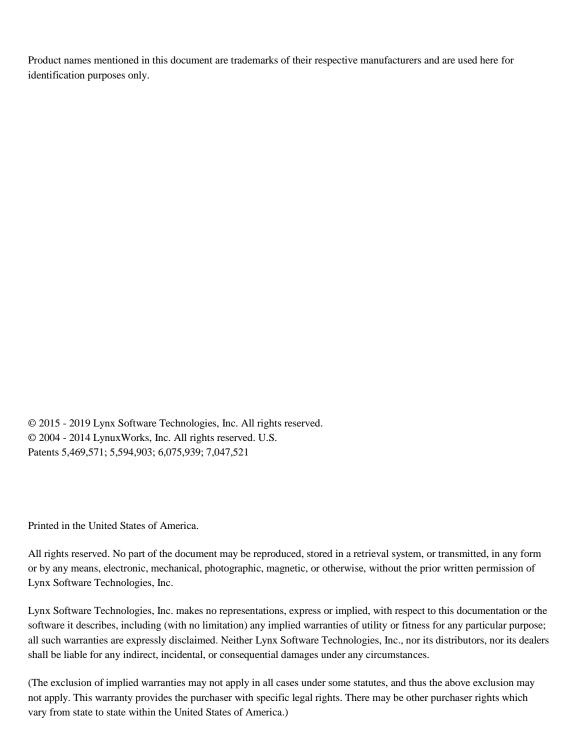# *Table of Contents*

Preface

Typographical Conventions

The typefaces used in this manual, summarized below, emphasize important concepts. All references to filenames and commands are case-sensitive and should be typed accurately.

Kind of Text	Examples
Body text; *italicized* for emphasis, new terms, and book titles	Refer to the *License Management Software User's Guide*
Environment variables, filenames, functions, methods, options, parameter names, path names, commands, and computer data	`ls -l myprog.c /dev/null`
Commands that need to be highlighted within body text or commands that must be typed as is by the user are **bolded.**	`login: `**`myname`** `# `**`cd /usr/home`**
Text that represents a variable, such as a filename or a value that must be entered by the user, is *italicized.*	`cat `*`<filename>`* `mv `*`<file1>`* *`<file2>`*

Blocks of text that appear on the display screen after entering instructions or commands.	`Loading file /tftpboot/shell.kdi into 0x4000`
	
	`..................................`
	
	`File loaded. Size is 1314816`
	
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Keyboard options, button names, and menu sequences.	**Enter, Ctrl-C**

Technical Support

Lynx Software Technologies handles support requests from current support subscribers. For questions regarding Lynx Software Technologies products, evaluation CDs, or to become a support subscriber; our knowledgeable sales staff will be pleased to help you. Please visit us at:

http://www.lynx.com/training-support/contact-support/

How to Submit a Support Request

When you are ready to submit a support request, please include *all* of the following information:

- First name, last name, your job title
- Phone number, e-mail address
- Company name, address
- Product version number
- Target platform (for example, PowerPC)
- Board Support Package (BSP), Current Service Pack Revision, Development Host OS version
- Detailed description of the problem that you are experiencing:
- Is there a requirement for a US Citizen or Green Card holder to work on this issue?
- Priority of the problem - Critical, High, Medium, or Low?

Where to Submit a Support Request

Support, Europe	tech_europe@lynx.com +33 1 30 85 93 96
Support, worldwide except Europe	support@lynx.com +1 800-327-5969 or +1 408-979-3940 +81 33 449 3131 [for Japan]
Training and Courses	USA: training-usa@lynx.com Europe: training-europe@lynx.com USA: +1 408-979-4353 Europe: +33 1 30 85 06 00

Chapter 1 *Introduction*

This document is relevant to all Lynx Software Technologies products that use the License Management software based on the FlexNet Publisher version 11.14.1.3 and higher.

The goal of the Lynx Software Technologies License Management Software is to enforce the Product License Agreement by controlling and monitoring access to licensed products. Lynx Software Technologies has chosen to utilize the FlexNet Publisher licensing software (formerly known as FLEXlm) as the basis for the Lynx Software Technologies License Management software. The License Management process requires licensed products to communicate with the license server and check out a license before the product can be used.

Lynx Software Technologies products that use the FlexNet Publisher licensing software are provided with license keys on an annual basis. License keys generally expire every 12 months and require renewal. The license key renewal will most often be triggered by the product's annual support renewal date.

The FlexNet Publisher license server keeps track of how many licenses have been purchased and checks them out to the users wanting to start a protected product. For example, each developer who wants to run Lynx Software Technologies CDK tools shall start a development session by running the Lynx Software Technologies Session Manager (`lwsmgr`). The Session Manager sends the request to the FlexNet Publisher license server. If a license is available, the FlexNet Publisher license server will check out a license for that developer. Once a developer has successfully started a development session via `lwsmgr`, the Lynx Software Technologies CDK tools can be run. At the conclusion of a development session, the user checks the license back in using the Session Manager tool. The license is now available to other users.

Please note that some Lynx Software Technologies products and applications will check out a license directly from the FlexNet Publisher license server.

The remaining sections of this document cover the installation of the Lynx Software Technologies License Management software based on the FlexNet Publisher (FlexNet) version 11.14.1.3. This must be completed before it is possible to utilize any Lynx Software Technologies tools or products protected by this version of FlexNet Publisher. After installation of the FlexNet Publisher (FlexNet) software, the user must obtain and install a license key from Lynx Software Technologies.

If you are installing the Lynx License Management software on the same system where an earlier version of the Lynx License Management software has been already installed, see Chapter 6, "Running A Single License Server For Several Lynx Products" on page 27 to resolve potential compatibility issues.

CAUTION! Only one instance of the Lynx Software Technologies vendor daemon (lynxrtsd) can be simultaneously used on the same system. As a consequence, you cannot run the old and new versions of the Lynx License Management software on the same system.

Note that throughout the remainder of this document we will use the terms *"FlexNet Publisher"* and *"FlexNet"* inter changeably.

Currently the Lynx License Management software can be installed on the following systems:

- CentOS 7.x (64-bit)

- Windows 7 Professional (64-bit)

- Windows 10 Professional (64-bit)

Note that the FlexNet server must be visible to ALL clients on the network which need to checkout licenses.

CHAPTER 2 *Overview*

FlexNet is a client-server based licensing system that counts how many licenses are available and in use for a given licensed tool. A daemon called `lmgrd` runs on the license server and listens for license requests from protected products such as the Lynx Session Manager (`lwsmgr`). When a protected product starts, it checks a license file to find out where the license server is running. It then makes a request to the `lmgrd` daemon running on the server system or on the system where the product runs to check out a license. If a license is available, `lmgrd` issues it to the product, which can then continue to run normally. Periodically, `lwsmgr` must communicate with the `lmgrd` daemon to continue to run. When the product exits, the license is returned to the `lmgrd` daemon for someone else to use. When started, the `lmgrd` daemon launches vendor daemons which are specified in the license file. The Lynx License Management software uses the `lynxrtsd` daemon. Each vendor daemon handles license requests for the corresponding vendor's products, so a single `lmgrd` daemon can handle license requests from different vendor's products.

Lynx software products are licensed using one of two possible methods:

- **Node-Locked License**

  A single host/target version of the Lynx software, locked to run on a particular host computer. An example would be a single license to run the CentOS Linux-hosted LynxSecure CDK on a particular CentOS Linux system. Each system is uniquely identified by its composite host ID which can be obtained by running the `lwhostid` command.

- **Floating License**

  A single host/target version of the Lynx software, able to run on any networked host of the same type. An example would be a single license to run the CentOS-hosted LynxSecure CDK on any CentOS machine on the network that could see the network license server. Floating licenses are bound to particular server machine by its composite host ID which can be obtained by running `lwhostid` command and allow the product to be shared by different development hosts.

The server machine that runs the license daemon must be a stable, networked machine running one of the systems specified in the Introduction section. The server does not need to run on the same machine as the development machine where you run a Lynx product such as Lynx Session Manager (lwsmgr). For example, you may install the FlexNet license server on a central Linux host and run lwsmgr on any system which is supported by the Lynx product as a development host and which has a network connection with the FlexNet server.

For node-locked licenses, the FlexNet license server and Lynx products are normally installed on the same system and bound to its lwhostid. It is also possible to use different systems for the FlexNet license server and Lynx products.

For floating licenses, the FlexNet license server and the Lynx cross-development hosts are normally separate systems.

NOTE: You may not need to install the Lynx License Management software if you are going to run the license server (lmgrd) on the same host where you installed your Lynx product that includes the Lynx Cross-Development Kit (CDK). The CDK may already contain all the license tools required to run that product. You do need to install the Lynx License Management software if you are going to run the license server on a separate machine; for example, you run a Lynx product on a Linux 64-bit development host and use a Windows or different Linux 64-bit host to run the license server.

After a server machine is chosen, the FlexNet Publisher and Lynx License Management software is extracted from the CD-ROM. In the case of floating licenses, tools called lwhostid and lmhostid are run on the server to obtain the server's unique composite host ID and host ID. In the case of node-locked licenses, the lwhostid and lmhostid commands must be run on each host machine on which the Lynx products will run as well as the host on which the FlexNet license server will run if this host is different from the cross-development host. These host IDs are then sent to Lynx by email or fax by filling the License Key Request Form, and a key is then issued to the customer. Please refer to Chapter 4, "Obtaining a License" for complete details on getting the license from Lynx. Once it is obtained, the key is added to the license file and is used by the Lynx software and the lmgrd server.

NOTE: The system used for running the FlexNet software can be different from the development host.

NOTE: If you are going to use a single license server for the Lynx products licensed using the different versions of FlexNet, contact with Lynx Software Technologies, Inc. to get instructions whether and how it can be done.

For More Information

For more specific product information, refer to the *Release Notes* and *Installation Guide* documents for the corresponding Lynx Software Technologies products.

For more information about FlexNet Publisher version 11.14.1.3.1.3 refer to the *License Administration Guide*, *FlexNet Publisher 2016 R2 SP1 (11.14.1.3.1.1)* document located in the `docs` directory of the LynxOS-178 CD ROM or, for LynxSecure product, in `docs/pdf` subdirectory of LynxSecure environment.

CHAPTER 3 *Installing Lynx License Management Software*

The FlexNet and Lynx License Management software are installed on the development host automatically when a Lynx product is installed. The LynxSecure product installs the FlexNet and Lynx License Management software in the `/opt/lw-flexlm/v11.14.1.3` directory while LynxOS-178 products install it in the `/opt/Lynx/LynxOS-178-<ver>/flexlm/v11.14.1.3` directory on the Linux host and the `C:\Lynx\LynxOS-178-<ver>\flexlm\v11.14.1.3` directory on the Windows host, where `<ver>` is LynxOS-178 version. This chapter describes how to install the software manually if there is a necessity to install it on a host different from the development host.

Installing Lynx License Management Software on Linux Host

Installing from Tarball

The LynxOS-178 media contains directory `packages` where a tarball with the FlexNet and Lynx License Management software is located.

To install the FlexNet and Lynx License Management software on the Linux host, perform the following steps:

1. Verify that the LynxOS-178 CD-ROM is in the drive, that it is mounted, and that the user is logged in as `root` on the server machine.

2. Create the installation directory, for example:

   ```
   # mkdir -p /usr/local/flexlm
   ```

NOTE: The license management software can be installed in any directory. By default, it is installed in the directory `/usr/local/flexlm`.

CAUTION! If the `/usr/local/flexlm` or other directory already exists and contains a previous version of the FlexNet and Lynx License Management software, remove the existing version of the FlexNet and Lynx License Management software or create a new installation directory to install the new version. You cannot use both versions simultaneously on the same machine.

3. Change directory to the installation directory, for example:

   # **cd /usr/local/flexlm**

4. Extract the license management software from the media using the `tar` command. For example, if the CD-ROM is mounted at *<cdrom_mount_point>* and the LynxOS-178 CD-ROM is in the CD-ROM device, enter:

   $ **tar -xvzpf** *<cdrom_mount_point>***/packages/ \ flexlm-v11.14.1.3-license_linux64-*<date>*.tar.gz**

   where *<cdrom_mount_point>* is the mount point (usually, `/mnt/cdrom`), *<date>* is a build date assigned by Lynx.

5. Change directory to the directory where FlexNet and Lynx License Management version binaries are installed:

   $ **cd /usr/local/flexlm/v11.14.1.3/**<host>

6. Execute the `uname -a` command to get a host name:

   ```
   $ uname –a
   Linux myhostname 2.6.32-358.el6.x86_64 #1 SMP Fri Feb 22 00:01:02
   UTC 2016 x86_64 x86_64 x86_64 GNU/Linux
   ```

7. Execute the `lwhostid` command:

   ```
   $ ./lwhostid
   lwhostid = "COMPOSITE=2EFFEB7F5112 COMPOSITE=30B177FD4743"
   ```

8. Execute the `lmhostid` command:

   ```
   $ ./lmhostid
   FlexNetlmhostid - Copyright (c) 1989-2017 Flexera Software LLC. All
   Rights Reserved.
   The FlexNet host ID of this machine is ""484d7ecd6b1b aa54a39daad9""
   Only use ONE from the list of hostids.
   ```

NOTE: Depending on particular host system, the `lwhostid` and `lmhostid` may return one or several host IDs.

NOTE: The network must be set up and running on the host, otherwise `lwhostid` and `lmhostid` may return nothing or complain.

Installing from RPM

The LynxSecure media contains RPM with the FlexNet and Lynx License Management software.

To install the FlexNet and Lynx License Management software on the Linux host, perform the following steps:

1. Verify that the LynxSecure RPM CD-ROM is in the drive, that it is mounted, and that the user is logged in as `root` on the server machine.

2. Execute the following command:

   ```
   # rpm pm <cdrom_mount_point>/Lynx-FlexLM-11.14.1.3-<build>-
   <date>.x86_64.rpm
   ```

   where *`<cdrom_mount_point>`* is the mount point (usually, `/mnt/cdrom`), *`<build>`* is a build number and *`<date>`* is a build date.

The FlexNet and Lynx License Management software will be installed in the `/opt/lw-flexlm/v11.14.1.3` directory.

Installing Lynx License Management Software on Windows Host

To install FlexNet and Lynx License Management software on the Windows host, perform the following steps:

1. Insert the LynxOS-178 CD-ROM into the CD-ROM drive (for example, drive D:).

2. Open **My Computer** to use Windows Explorer and create a new folder for the License Manager package (for example, `C:\flexlm`).

NOTE: The license management software can be installed in any folder. Normally, it is installed in the `C:\flexlm` folder.

CAUTION! Backup and remove a previous version of the FlexNet and Lynx License Management software if it has been already installed on the Windows system, or create a new installation folder to install the new version of the Lynx License Management Software. You cannot use both versions simultaneously on the same machine.

3. Using Windows Explorer, show contents of the *`<drive>`*`:\packages\`directory, right click on `flexlm-v11.14.1.3-license_win32-<date>.zip`file, click **Open with**... item and select **Windows Explorer** from the list. A new window with the `win32` directory will pop-up. Right click on the `win32` directory and

click **Copy** in the menu.

4. In Windows Explorer, open the directory created at Step 2, right click there and select **Paste**.

5. In Search for box enter cmd and click Enter. A command window will be opened.

6. In the command window, go to the v11.14.1.3\win32 subfolder of the installation folder. For example:

```
C:\Users\user1> cd \flexlm\v11.14.1.3\win32
```

7. Run the lwhostid command:

```
C:\flexlm\v11.14\win32>lwhostid
lwhostid = ""COMPOSITE=210987654321COMPOSITE=109876543210"
```

8. Execute the lmhostid command.

```
C:\flexlm\v11.14\win32>lmhostid
lmhostid - Copyright (c) 1989-2017 Flexera Software LLC.
All Rights Reserved.
The FlexNet host ID of this machine is ""0002b31a6ab9
00221567622a""
Only use ONE from the list of hostids.
```

NOTE: Depending on particular host system, the lwhostid and lmhostid may return one or several host IDs.

Chapter 4 *Obtaining a License*

Obtaining a License

To obtain a license, please complete and submit the FlexNet license key request form (Document Name: `1127-05-FLEXlm_lic_key_request.doc`), that is provided with your product shipment. Once complete, the form can be emailed to `license@lynx.com` or faxed to (408) 979-3955.

You will be requested to supply the following information:

- Your contact information including a valid email address
- Product serial number
- Sales order number or purchase order number
- Product version and target platform
- The FlexNet host specific information

Caution! If you are going to run on this machine Lynx products that use old versions of LynxSecure (4.0, 4.9, 5.0), or Luminosity/LOCI 4.7, you shall run corresponding license server (supplied with those products) on a different machine.

Getting the FlexNet Host Information

The required host information includes the FlexNet host ID, Lynx composite host ID and host name.

Getting the FlexNet Host Information from Linux

On the Linux system, perform the following steps:

1. Change directory to the installation location, for example:

   ```
   # cd /usr/local/flexlm/v11.14.1.3.1.3/linux64
   ```

2. Execute the lwhostid command:

   ```
   # ./lwhostid
   lwhostid = "COMPOSITE=2EFFEB7F5112 COMPOSITE=30B177FD4743"
   ```

3. Execute the lmhostid command:

   ```
   # ./lmhostid
   lmhostid - Copyright (c) 1989-2017 Flexera Software LLC.
   All Rights Reserved.
   The FlexNet host ID of this machine is ""484d7ecd6b1b
   aa54a39daad9""
   Only use ONE from the list of hostids.
   ```

   The FlexNet host ID of this machine is "484d7ecd6b1b aa54a39daad9"

4. Execute the uname utility to get host name, for example:

   ```
   # uname -a
   Linux licserver 3.10.0-693.11.6.el7.x86_64 #1 SMP Thu Jan 4 01:06:37 UTC
   2018 x86_64 x86_64 x86_64 GNU/Linux
   ```

   In the above sample output, the second field shows the hostname, licserver in this example.

Getting the FlexNet Host Information from Windows

On the Windows host, perform the following steps:

1. Change to the directory where the Lynx License Manager software is installed. From the Start menu, run Command prompt and then execute the following command:

   ```
   C:\>cd \flexlm\v11.14.1.3\win32
   ```

2. Execute the lwhostid command:

   ```
   C:\flexlm\v11.14.1.3\win32>lwhostid
   lwhostid = "COMPOSITE=99EECCDD5577 COMPOSITE=3300AAFFEE22"
   ```

3. Get the host ID.

   Execute the lmhostid.exe command:

   ```
   C:\flexlm\v11.7\win32>lmhostid.exe
   lmhostid - Copyright (c) 1989-2017 Flexera Software LLC. All Rights
   Reserved.
   The FlexNet host ID of this machine is ""0002b31a6ab9 00221567622a""
   Only use ONE from the list of hostids.
   ```

4. Get the host name.

   Find full computer name by clicking the **Start** menu, right-clicking **My Computer**, selecting **Properties**, and activating the **Computer Name** tab.

NOTE: On some hosts, the `lmhostid` and `lwhostid` utilities may provide several strings of hexadecimal digits. Use the first one as the `lmhostid` or `lwhostid` of the host.

After authorization, your licensing information file will be sent to you. On the host where the license server is to be run, install the license received from Lynx. The following example assumes that you installed the license software in the `/usr/local/flexlm` directory on Linux host. If this is not true, edit the VENDOR line to match your actual installation location.

```
SERVER <hostname> COMPOSITE=<lwhostid> [port]
VENDOR lynxrtsd /usr/local/flexlm/v11.14.1.3/linux64/lynxrtsd \
    options=/usr/local/flexlm/v11.14.1.3/license.opt
FEATURE LYNXOS-178_TOOLS_linux_x86_64 lynxrtsd 2.2400 \
    27-oct-2019 1 VENDOR_STRING=LynuxWorks
    HOSTID=COMPOSITE=86d089b60c00 \ NOTICE=common SIGN="0CBB
    EE99 95CC C7C7 0303 \
    3232 0000 7474 5757 5757 C888 4444 BCDE DBAC 0014 0444 BBBB \
    4444 3333 2222 1111 0000 9999 8888 7777 6666 5555 4444 3333 \
    D2FC"
```

In the SERVER line, make sure that *<hostname>* correctly matches your host name and *<lwhostid>* correctly matches your composite host ID.

If the development host is different from the license server machine, there are two ways to provide a license to developers on separate hosts:

   a) copy this license file to each development host,

   b) create a license file for each development host by combining the first SERVER and DAEMON lines from the license on the license server machine with the line that contains only the USE_SERVER word, like this:

   - for Linux host:

```
SERVER <hostname> COMPOSITE=<lwhostid> [<port>]
VENDOR lynxrtsd
/usr/local/flexlm/v11.14.1.3/linux64/lynxrtsd
USE_SERVER
```

   -for Windows host:

```
SERVER <hostname> COMPOSITE=<lwhostid> [<port>]
VENDOR lynxrtsd
C:\flexlm\v11.14.1.3\win32\lynxrtsd
USE_SERVER
```

NOTE: If you already have this version of Lynx License Management software running for products you received earlier from Lynx, add the lines from the new license except the SERVER and VENDOR lines to your existing license and execute the `lmreread` command.

NOTE: If you already have an older version of the Lynx License Management server running for products you received earlier from Lynx, see chapter 6 for additional information.

NOTE: Be sure that the VENDOR line in your license specifies a path to the `lynxrtsd` vendor daemon you have installed as described in Chapter 3, or the path is empty. It can be empty if the license server and the vendor daemon reside in the same directory on the license server machine.

CAUTION! The `<port>` in the SERVER and VENDOR lines specifies the port number(s) used for communications between the license sever, the vendor daemon, and the application. In case they are absent, the default port numbers are used. In case your network communications are controlled by a firewall, the default port numbers can be blocked. Ask your system administrator to provide a port number for the license server and add it to the SERVER line as a `<port>` value. If the vendor daemon is running on the same machine as the server, the VENDOR line normally does not need a port number argument.

CHAPTER 5 *Using the Lynx License Management Software*

Starting the FlexNet License Management Server

Start the license manager daemon, `lmgrd`. The daemon `lmgrd` is the main daemon program for the FlexNet distributed license management system. When invoked, it looks for the license file containing all required information about licensed products. The daemon should continue to run in the background.

On the Linux hosts execute the following command:

```
$ cd /usr/local/flexlm/v11.14.1.3/linux64
$ ./lmgrd -c <license_file_list> &
```

where `< <license_file_list>` is the list of full pathnames to the license files that the server should utilize. If there is more than one license file the list items should be separated by a colon.

Another way to make `lmgrd` use a license file different from the default one is to set the `LM_LICENSE_FILE` environment variable prior to starting the server.

For example:

```
$ export
LM_LICENSE_FILE=/usr/local/flexlm/v11.14.1.3/linux64/license.dat
$ ./lmgrd &
```

The `LYNXRTSD_LICENSE_FILE` environment variable can also be used to specify the license file absolute pathname or the list of absolute pathnames separated by a colon (on Windows, a semicolon). If both `LM_LICENSE_FILE` and `LYNXRTSD_LICENSE_FILE` are used, the latter will override the former.

FlexNet Publisher environment variables can also be set in two other ways:

- In the process environment

- In the `$HOME/.flexlmrc` file (for Unix systems)

Check that the `$HOME/.flexlmrc` file is absent or does not contain the `LYNXRTSD_LICENSE_FILE` environment variable. If such file exists and contains environment variables that are needed for other vendor products, check that `LYNXRTSD_LICENSE_FILE` variable properly specifies the full pathname of your license file; otherwise, edit the value of the variable by adding the full pathname of your license file separated by a colon (on the Linux host).

It is convenient to have the host operating system start the daemon automatically at boot time. Consult your operating system's user manuals for more information. For example, on Linux, you can do that from the following scripts:

- `/etc/rc.local`
- `/etc/rc[35].d/S*`

On Windows host, use the following commands to start `lmgrd` from the **Command Prompt** window:

```
$ c:
$ cd \flexlm\v11.14.1.3\win32
$ lmgrd -c <license_file_list>
```

where `<license_file_list>` is the list of full paths to the license files that the server should take into account.

For example: `c:\flexlm\v11.14.1.3\win32\license.dat`

NOTE: `lmgrd` can be launched from the Cygwin window. In this case all backslash symbols should be duplicated. For example:

`lmgrd -c C:\\flexlm\\v11.14.1.3\\win32\\license.dat`

NOTE: The list items should be separated by a semicolon.

Another way to make `lmgrd` use a license file different from the default one is to set the `LM_LICENSE_FILE` environment variable prior to starting the server. To do this, use the **System->Advanced->Environment Variables** dialog from the **Control Panel**.

Edit or add the `LM_LICENSE_FILE` environment variable setting it as the list of full pathnames of license files.

Checking the Status of FlexNet Server

To check the installation, use the `lmstat` command. Make sure that the `lmstat` command is in your PATH and that the `LM_LICENSE_FILE` environment variable is set before trying to run it. For example, on Linux x86 64bit:

```
bash# export
LM_LICENSE_FILE=/usr/local/flexlm/v11.14.1.3/linux64/license.dat
bash# export PATH=/usr/local/flexlm/v11.14.1.3/linux64:$PATH
bash# lmstat -a
```

The above sequence of commands should produce output similar to the following:

```
lmstat - Copyright (c) 1989-2017 Flexera Software LLC. All Rights Reserved.
Flexible License Manager status on Wed 11/7/2018 21:56

License server status: 27000@licserver
    License file(s) on licserver:
/usr/local/flexlm/v11.14.1.3/linux64/license.dat:

licserver: license server UP (MASTER) v11.14.1

Vendor daemon status (on licserver):

  lynxrtsd: UP v11.14.1
Feature usage info:
Users of LYNXOS-178_TOOLS_linux_arm: (Total of 3 licenses issued; Total of 2
licenses in use)
"LYNXOS-178_TOOLS_linux_arm" v2.2400, vendor:
lynxrtsd expiry: 30-mar-2019 vendor string:
LynuxWorks floating license
user1 host1 /dev/pts/6 (v1.0) (licserver/27000 206), start Wed 5/12 16:36
user2 host2 /dev/pts/6 (v1.0) (licserver /27000 602), start Mon 5/10 16:52
```

For additional information about license server commands, refer to the FlexNet Publisher documentation available in the `docs` directory of the LynxOS-178 media or, for LynxSecure product, in `docs/pdf` subdirectory of LynxSecure environment. The documents are provided in the PDF format.

Stopping the License Management Server

To stop the License Management Server, use the `lmdown` command. For example:

```
# lmdown
lmdown - Copyright (c) 1989-2017 Flexera Software LLC. All Rights
Reserved.

   Port@Host          Vendors
1) 27000@licserver lynxrtsd

Are you sure (y/n)?  y
    1 FlexNet License Server shut down
```

Starting the Lynx Session Manager

If the development host is the same as the FlexNet server host, change to the directory in which the Lynx CDK is installed and set the environment.

For example, for LynxSecure:

```
$ cd <lynxsecure-installation-directory>
$ . SETUP.bash [<cpu>]
```

NOTE: On Windows host, enter the Cygwin environment beforehand.

To start the Lynx Session Manager, enter the following commands:

```
$ lwsmgr &
Session Manager started
```

NOTE: On the Windows host, the lwsmgr command may open the license management session window depending on the product. The license management session will run while this window is open. Closing the license management window stops the license management session.

If the development host is different from the FlexNet server host, use one of the methods described below prior to starting lwsmgr.

- Use a local copy of the license file:

    1. Create the FlexNet directory:

    ```
    $ mkdir -p /usr/local/flexlm/v11.14.1.3
    ```

    2. Copy the license file from the FlexNet server to the development host's FlexNet directory

    3. Define the license data

    file: On the Linux host:

    ```
    $ export LM_LICENSE_FILE=/usr/local/flexlm/v11.14.1.3/license.dat
    ```

    On the Windows host:

    ```
    $ export \
    LM_LICENSE_FILE=`cygpath -w /usr/local/flexlm/v11.14.1.3/license.dat`
    ```

NOTE: The license file can be installed in any directory.

The license file can be edited on the development host to replace all lines except for the SERVER and VENDOR lines with the following line:

```
USE_SERVER
```

- Use a shared copy of the license file from the FlexNet server using NFS:

    1. Create the FlexNet directory:

    ```
    $ mkdir -p /usr/local/flexlm
    ```

    2. Mount the exported FlexNet directory from the FlexNet server:

```
$ mount <FLEXlm_server>:/usr/local/flexlm/usr/local/flexlm
```

3. Define the license data file.

```
$ export LM_LICENSE_FILE=/usr/local/flexlm/v11.14.1.3/license.dat
```

- Specify the license server host directly as `@<host>` where `<host>` is a name of the host where the license server is running.

```
$ export LM_LICENSE_FILE=@licserver
```

To start the Lynx Session Manager, enter the following command.

```
$ lwsmgr &
Session Manager started
```

NOTE: On Windows systems, some versions of `lwsmgr` can be launched without creating a separate window using the following command:

```
$ lwsmgr -nw
```

Once the Lynx Session Manager is started, the user can use the protected cross-development tools.

NOTE: In LynxOS-178, invocation of the session manager has the following peculiarities:

1. The session manager is started automatically when the user sources `SETUP.bash`. When sourced for the first time, `SETUP.bash` asks the user for the license file name and saves the answer in the `$ENV_PREFIX/.licensefile` file to use for further `lwsmgr` invocations.

2. When running on the Windows host, the license session manager does not bring up an additional window and can be launched without `&`.

3. On the Windows host, when `SETUP.bash` requests a license file, it should be specified using Windows path style with escaping symbol '\', e.g. `C:\\Lynx\\license.dat`

4. If LM_LICENSE_FILE variable is set in the environment, it's used when `SETUP.bash` is sourced for the first time to create `$ENV_PREFIX/.licensefile` file. If `LM_LICENSE_FILE` variable is set in the environment and `$ENV_PREFIX/.licensefile` file exists, the value of `LM_LICENSE_FILE` is re-set by `SETUP.bash` to the contents of the file.

More Information on the Lynx Session Manager

To stop the Lynx Session Manager, enter the following:

```
$ lwsmgr -s
Session Manager stopped
```

To check session information, enter the following:

```
$ lwsmgr
Current session status:

License type: floating license
Checkout date/time: Mon May 19 14:49:02 2019
Last auth date/time: Wed May 19 1910:44:24 2019
Expiration status: expires in 361 days
```

NOTE: On Windows systems, the session information is available in the pop-up window if it appears on lwsmgr starting. If it does not appear, the same command can be used to check session information.

CHAPTER 6 *Running a Single License Server for Several Lynx Products*

The user may choose to run a single FlexNet license server for several Lynx products that use different versions of the FlexNet software. The license server included in the License Management software of version 11.14.1.3 can be used for the following Lynx products:

- LynxSecure 5.1 and higher

- LynxOS-178 version 2.2.x where x is 3 and higher

- LynxOS-178 version 2.3.2

- LynxOS-SE version 6.0.1

- LynxOS version 7.x.x

- Luminosity version 5.x.x (including SpyKer 5.x.x)

If you have Lynx products of different versions, run license server included in the corresponding product on a different host.

If you have a license server of version different than 11.14.1.3 running for a Lynx product from the list above and purchases LynxSecure 6.x or LynxOS-178 ARM products licensed with license software of version 11.14.1.3, perform the following actions:

1) Install license management software of version 11.14.1.3 as described in "Chapter 3. Installing Lynx License Management Software" on page 9.

2) Get a license file for new products from Lynx Software Technologies, Inc. as described in "Chapter 4. Obtaining a License" on page 13.

3) Shutdown the old license server using `lmdown` command.

4) Add a new license file to the list of license files set by LM_LICENSE_FILE or LYNXRTSD_LICENSE_FILE environment variable.

5) Start new license manager using `lmgrd` command.