Landmark Application Manager User's Guide

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Introduction to Licensing

Landmark's Application Manager (LAM) is the license system used to control access to Landmark applications. LAM is based on Flexera's FLEXnet Publisher's product.

This document describes the procedures for installing, configuring, and managing the license system to control the usage of Landmark applications, including the following topics:

Version Compatibility

The 5000.0.3.0 release uses the FLEXnet Publisher product produced by Flexera. If you are currently using the Release 2003 (FLEX version 7) license server, it is important to move to the Release 5000.0.3.0 licensing to license Landmark products that use the FLEX version 11 client software. It is also important to use the new server for those Landmark software products that are using the LGCX vendor daemon. This support did not exist for the 2003 Release nor for the 5000 Release. The Release 5000.0.3.0 products are tested against the following FLEXnet Publisher versions. These are the versions that should be used with Landmark's Release 5000.0.3.0 products.

Landmark Release	FLEXlm/FLEXnet Publisher/ Version	Operating Systems
5000.0.3.0	11.7	Windows 32 bit and 64 bit, Linux 64 bit

The LAM 5000.0.3.0 Server software must be installed and new license files must be obtained prior to attempting to run any Release 5000.0.3.0 applications. The detailed procedures to perform these tasks are contained in the platform-specific chapters of this guide.

LAM 2003.x and LAM 5000.0.3.0 servers and clients cannot be mixed in general. For example, you cannot run a LAM 5000.0.3.0 program against a LAM 2003.x server.

Compatibility with 2003.x License Files

It is possible to use Release 2003 license files with the Release 5000.0.3.0 license server. **There are several restrictions and this method is not recommended.**

To run the Release 2003 license files with the Release 5000.0.3.0 server:

• We recommend that you locate the Release 2003 license files in the same directory.

• There cannot be any duplicate features between the license files (e.g. lines beginning with "FEATURE geoprobe" cannot be in two files).

- If the LM_LICENSE_FILE is set to the directory where multiple license files are located, the file extensions must be changed from.dat extensions to.lic extensions.

- All the Landmark .lic files must have the same port number.

> **Note:**
>
> IF you are NOT using a FLEX 3-server redundant server configuration, you CAN have both Release 2003 and Release 5000.0.3.0 license files running on the same server IF you have your Release 2003 license files re-issued to include multiple FLEX version-specific keys. Landmark Licensing knows how to do this.

Compatibility of Release 5000.0.3.0 License Files with Release 2003 License Server

Due to FLEX's version compatibility rules, you cannot use Release 5000.*x* license files on an 2003 server. The newer the software products must access a license server that is at the same or newer version as the client to guarantee reliable compatibility.

Upgrade Options for LAM Upgrade from 5000.0.0 to 5000.0.3

The license server can be upgraded in several ways. Select one of the options below that is most convenient for your environment.

Option 1 describes the steps for a complete uninstall of the existing license server and a fresh install of the new license server. Option 2 describes the steps to install the upgrade on the same license server host, in an alternate location. Options 2 requires no downtime for clients. Option 3 is similar to Option 2, but installs on an alternate host server. Option 3 assumes two LAM server instances running in your environment. The current server contains licsrv DEAMON and features, and the new server contains lgcx DEAMON and features.

Option 1 - Uninstall LAM 5000.0.0 Server and Install LAM 5000.0.3 Server

To uninstall an existing LAM 5000.0.0 server:

1. Run a command, such as the following, to shut down the running LAM 5000.0.0 server.

   /Landmark/OpenWorks/LAM_5000_0_0_0/bin/lmd own –c /Landmark/OpenWorks/LAM_5000_0_0_0/license. dat

2. Save a backup copy of current license.dat to another directory so that you can preserve the current DEAMON features. You will need this file in step 6 when you merge licsrv features with lgcx features.

3. Uninstall LAM 5000.0.0 server using a command similar to the following:

   /Landmark/OpenWorks/LAM_5000_0_0_0/Uninsta ll_LAM\ 5000.0.0/Uninstall_LAM_5000.0.0

4. Obtain LAM 5000.0.3 suite and required features For example:

   • LSM download
   • Obtain any "lgcx" DEAMON features.

5. Install LAM 5000.0.3 on the current LAM server machine. For example:

    /Landmark/OpenWorks/LAM_5000_0_3_0

6. Merge the existing license.dat (use backup file from step 2) with the "new" lgcx features in LAM 5000.0.3's home directory. If required, update the port number by using the LM_LICENSE_FILE variable setup.

7. Launch the new LAM 5000.0.3 server by using:

    setenv LAMHOME /Landmark/OpenWorks/LAM_5000_0_3_0;
    setenv LM_LICENSE_FILE
    /Landmark/OpenWorks/LAM_5000_0_3_0/license.dat;
    $LAMHOME/bin/startlmgrd

8. Update the user's environment with the "new" LAM connection. For example, update LM_LICENSE_FILE environment variable to reference LAM 5000.0.3 server.

Note

This step is not necessary, if you are installing LAM 5000.0.3 in the same location as LAM 5000.0.0.

Option 2 – Install LAM 5000.0.3 without Down Time on Server (Not Applicable to Windows)

To install the Landmark Application Manager without any downtime on the current server:

1. Update the user's environment with the "new" LAM connection. For example:

    Append users env: LM_LICENSE_FILE
    2013@LAMmaster:2014@LAMmaster

2. Obtain LAM 5000.0.3 suite and required features. For example:

    • LSM download
    • Obtain any "lgcx" DEAMON features.

3. Install LAM 5000.0.3 in new a $LAMHOME, on the current LAM server machine. For example:

    /Landmark/OpenWorks/LAM_5000_0_3_0

4. Merge the existing license.dat with the "new" lgcx features in LAM 5000.0.3's home directory. If required, update the port number by the LM_LICENSE_FILE variable setup.

5. Run a command to shut down the running LAM 5000.0.0 server, and launch the new LAM 5000.0.3 server. A script, similar to the following will minimize disruption to users who are using the server.

    /Landmark/OpenWorks/LAM_5000_0_0_0/bin/lmd
    own −c
    /Landmark/OpenWorks/LAM_5000_0_0_0/license.
    dat; setenv LAMHOME
    /Landmark/OpenWorks/LAM_5000_0_3_0; setenv
    LM_LICENSE_FILE
    /Landmark/OpenWorks/LAM_5000_0_3_0/license.
    dat; $LAMHOME/bin/startlmgrd

Option 3 - Install LAM 5000.0.3 Without Down time on an Alternate Server

To install the Landmark Application Manager without any downtime on an alternate server:

1. Update the user's environment with the "new" LAM connection. For example:

    Append users env: LM_LICENSE_FILE
    2013@LAMmaster:2013@LAMalternate

2. Obtain LAM 5000.0.3 suite and required features. For example:

    • LSM download
    • Obtain any "lgcx" DEAMON features.

3. Install LAM 5000.0.3 on an alternate LAM server machine. For example:

Host: LAMalternate, Location:
/Landmark/OpenWorks/LAM_5000_0_3_0

4. Copy new license.dat with the "new" lgcx features in LAM
    5000.0.3's home directory. If required, update the port by the
    LM_LICENSE_FILE variable setup.

5. Launch the new LAM 5000.0.3 server. For example:

    setenv LAMHOME
    /Landmark/OpenWorks/LAM_5000_0_3_0; setenv
    LM_LICENSE_FILE
    /Landmark/OpenWorks/LAM_5000_0_3_0/license.
    dat; $LAMHOME/bin/startlmgrd

Understanding the License Process

This section explains the basic concepts of application licensing, the License System architecture, the syntax of the file license.dat, the use of LM_LICENSE_FILE, and the options file. Before trying to manage the licensing process, you should understand the basic concepts involved.

The concepts described in this section are valid for all platforms on which Landmark applications are certified.

How Licensing Works

Licensing allows controlled use of Landmark applications in network, local, or stand alone environments. When you purchase a Landmark application, you also purchase one or more *licenses*, which give users the right to use the application.

The number of licenses an application has determines the number of users who access the application(s) concurrently. As customer requirements grow, customers may purchase additional licenses that allow more users to access applications concurrently. The License System should be transparent to the user and require minimal configuration and maintenance by the network administrator.

Common Terms

Certain key terms are used in this guide to describe Landmark's license system. The most important are listed in the table below.

Common Network Licensing Terms

Term	Definition
Client	An application that can communicate with a server process. A client can reside on either the same system as the server or on a networked system.
Daemon (Server)	A program serving clients. Sometimes referred to as a server, a daemon process usually "lives" before, during, and after an application program runs.
License	A key allowing applications to execute. A license contains a password that prevents it from being reproducible or editable.

Common Network Licensing Terms (Continued)

Term	Definition
License File	A file containing a description of the license servers, the various application daemons to service application license requests, and all the licenses that are available to the applications.
License Server	A daemon running on a workstation and communicating with licensed applications. It collects license requests from applications and passes the information to the appropriate application's license daemon to service the requests. In addition, the license server maintains information about current applications' users, the number of licenses per application, and other crucial data.
Log File	An optional file that is created by the license server. It contains information about license usage.
Host	An actual computer that resides on the network. It may be the computer on which the license server runs, it may be a computer on which licensed applications run, or it may be a computer on which the license server and licensed applications are running.
Application	Any Landmark program licensed to a customer.
Standalone License	This configuration requires no LAM server components. The license is node locked to the computer. This is used by some applications when the computer will be undocked (e.g. going to a rig location).
Local Server	In this configuration the applications and license server are located on the same computer.

Network Configuration

For a licensed application and the License Server to communicate properly, the network configuration should be properly set up. A proper network configuration requires the following:

- The machine on which the licensed application runs must have access to the License Server.

- Landmark applications use port 2013 as a default for license requests by the FLEXnet Publisher license manager (lmgrd). This value appears in the fourth column of SERVER lines of the license.dat file. Each application determines this port number by reading the license.dat file or the LM_LICENSE_FILE environment variable. This occurs automatically when the application tries to check out a license.

When using multiple license files the port number must be unique for each instance of the FLEXnet Publisher license manager running on a system. The port number can be changed to any open TCP/IP port on the system if there is a conflict with a port used by another process.

> **Note:**
>
> Windows platforms will only support a single instance of the FLEXnet Publisher server running.

License System Architecture

The License System provides the following architecture for licensed networked Landmark applications. The architecture is very similar for local servers which will be discussed at the end of this section. Some Landmark products also provide for a Standalone license; this will also be discussed at the end of the chapter. The major components of the License System are discussed on the following pages.
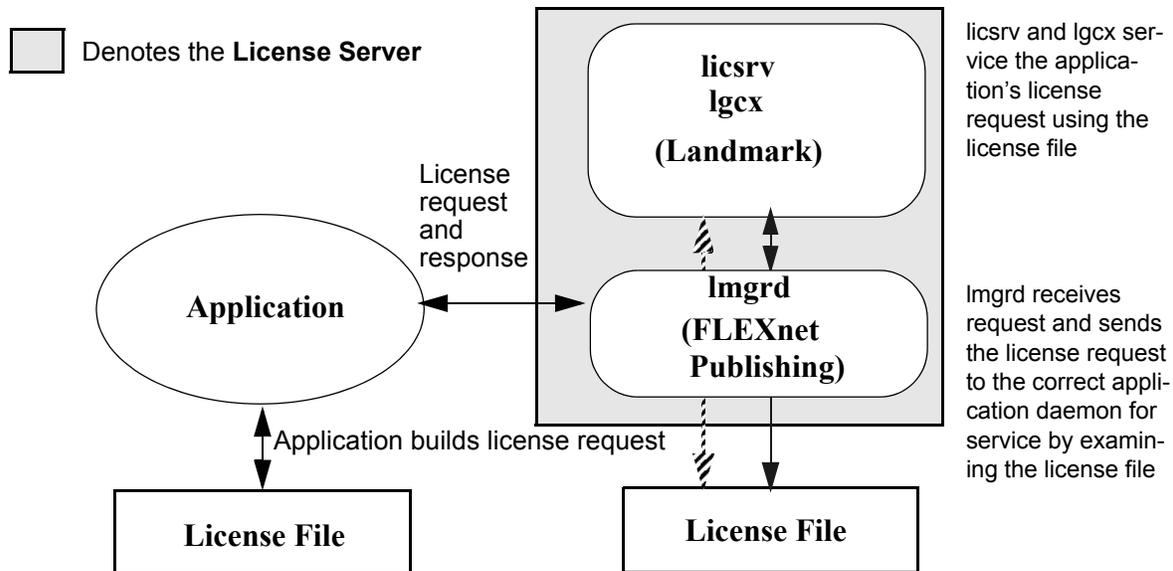
License Server

The License Server is a group of daemons that control the distribution of application licenses. When you attempt to use a licensed application, the application must obtain a license from the License Server before the application is made available to the user. If the license request is rejected, the user will not be able to use the application. The License Server can be any workstation that runs the license server process `lmgrd`. This process is ordinarily started when the system boots up.

License File Components

The License File (`license.dat`) file contains all the information needed by the License Server to manage application licenses. This file contains all licenses that are available to applications using the License System. The License File has a well-defined syntax that system administrators should understand. The path name of the file is typically `$LAMHOME/license.dat` in Linux, and is typically

c:\Landmark\LAM\license.dat in Windows. The following is an example of a license.dat file where the LAM home directory is /pa/lam:

```
SERVER oarfish.lgc.com 00215a4da702 2013
DAEMON licsrv /d01/LAM/bin/licsrv /d01/LAM/licsrv.opt
DAEMON lgcx /d01/LAM/bin/lgcx /d01/LAM/lgcx.opt
FEATURE DSDBASE lgcx 5000.6 3-nov-2011 10 VENDOR_STRING="Landmark"
FEATURE POSTPAL licsrv 5000 14-sep-2011 25 FF529390DBDA
VENDOR_STRING="Landmark"
```

Each component of the License File license.dat is described in more detail below. The descriptions use the license.dat file shown above.

SERVER

This component defines the license servers in the network. The format is as follows:

```
SERVER nodename hostid port
```

In the example above, the license server is called oarfish, with a host ID of 00215a4da702 and a port number of 2013. All Landmark license files use port 2013 as a default. The port number can be changed to meet site requirements. However, the port number in a license file for each license server described in the file must be the same.

Some license files have multiple SERVER lines while others have a single SERVER line. Multiple SERVER lines denote a redundant License System configuration that will minimize down time due to hardware failure or network failure. If you are installing a redundant server system FLEXnet Publisher mandates that a *three* SERVER system be established. There will be, therefore, three server lines in the license.dat file. We recommend that you review the *FLEXnet Publisher User's Guide* prior to setting up a redundant system. The documentation is located at:

http://www.flexerasoftware.com

To run a three server redundant system:

- Install the license server on three computers with network connections between the three.

- The license files must be specifically cut for a redundant system and will contain the name and hostid for each server. When asking for the license file please specify which hostid is the master server.

If the master server LAM service is unavailable then FLEXnet Publisher Server software will automatically assign one of the two remaining servers as the new master. At least two (2) of the three (3) servers must be online and communicating properly with each other for the system to work as expected (FLEX calls this a "quorum").

- The LM_LICENSE_FILE environment variable must be set to the path of the redundant server license file on each client as well as on the servers or the redundancy many not work correctly in all configurations. The license files must be identical. Do not change the order of the server lines in the license files.

DAEMON

This component identifies and defines the location of the license server executables. The format is as follows:

```
DAEMON serverID filename optfilename {PORT=nnnn}
```

All Landmark applications use the licsrv or the lgcx daemon (server). Third-party vendors will have their own DAEMON line. The options file /pa/lam/licsrv.opt is used to allow the customer to control certain special operations of the server. This is described in detail later in this section. You can assign a static port to the daemon as well as lmgrd by adding the optional port clause to this line. This is useful for navigating with firewalls. Without this port clause, the server will choose an unused port at random.

FEATURE

This component defines the application being licensed, the License Server used by the application, the version, expiration date, number of users, password, and vendor string (used for security). One Landmark application may have multiple feature lines depending on the options you purchased. The format is as follows:

```
FEATURE FeatureName DaemonName FeatureVersion ExpDate
MaxUserCount Key VendorString [hostid]
```

where *hostid* is optional.

This is the format for lgcx licenses:

FEATURE *FeatureName DaemonName FeatureVersion ExpDate MaxUserCount VendorString [hostid]* SIGN=*xxxx xxxx ...*

An expiration date of "1-jan-0000" is used if the license will never expire. The license encrypted data is generated by Landmark and depends on:

- the host ID's of the SERVER line(s) in the license.dat file

- the order of the SERVER lines if multiple SERVER lines exist

- the DAEMON line contents

- the number of users specified

- the expiration of the license

License Options File

The file licsrv.opt specified in the license.dat file modifies the way that the License Manager creates a dedicated encrypted report log and checks out licenses. The following options can be specified in the options file:

REPORTLOG

This option specifies the file to be used to store information about application usage. In the next example, the file is /usr/adm/lgc.log. The + before the filename means the License Manager will append to that file instead of overwriting the file every time it is started:

```
REPORTLOG +/usr/adm/lgc.log
```

See the *FLEXnet Publisher User's Guide* for further options available in the license options file. The Guide is located at the following URL.

http://www.flexerasoftware.com

Local Servers

A server is defined as local when the LAM software has been loaded on the same host as the Landmark applications. The license file will look exactly like the networked license file. If the server is placed on a

network then applications on other computers will be able to use the
server.

Standalone Licenses

Some Landmark products allow you to install a license on a computer
for use on only that computer. In this instance the license file is node
locked to the computer. No server components are installed. The
license.dat file will have the following changes:

- The DAEMON line will not be included.

- There will not be a server line.

- The FEATURE lines will contain the word "uncounted" for the
  MaxUserCount item and the hostid is present on the line.

Using the License System with Third-Party Software

Because Landmark's License System uses FLEXnet Publisher from Flexera, administrators must be careful when installing other third-party software that also uses FLEXnet Publisher.

How to Manage the License System

When your environment contains both Landmark and other third-party software, there are two ways to manage the license system:

- The first (and easiest) way produces separate license systems. Landmark applications reference one license system while third-party software references other license systems.

- The second (more complicated) way produces a single license system that is used by both Landmark applications and the third-party software.

Separate License Systems (non-Windows systems only)

To create separate license systems for Landmark applications and for the third-party software on the same host, perform the following:

1. Locate license.dat in the Landmark applications environment.

2. Locate the SERVER lines within the above license file.

   Notice that the fourth column in the SERVER line is a number representing the port number that the Landmark license server will use to listen for license requests.

3. Change the port number to a number that is *different* from the port number used by any of the third-party vendor's license servers. (By default Landmark uses port 2013.)

4. Stop and restart the Landmark license server (page 25 for Linux).

5. Every Landmark application must have access to the license server if you are running on a networked system.

The result is two separate license systems each listening on a different port. Landmark applications will use the Landmark license system. Third-party applications will continue using their license system(s).

Single License System

To create a single license system that is shared by both Landmark applications and other third-party applications:

1. View the Landmark license file and the third-party license file(s).

2. Verify that the SERVER lines match in number and host id.

3. Make backup copies of all files.

4. Copy SERVER lines (no duplicates).

5. Copy DAEMON lines (no duplicates).

6. Copy FEATURE lines (no duplicates).

Copy the new license.dat into a location where the license server looks for it (for example in Linux, `$LAMHOME/license.dat`).

7. Ensure that the third party application(s) has access to the license system.

8. Stop and restart the license server (page 25 for Linux DRC: does this page number stay in? or page 37 for Windows).

Installation Terminology—Client Tools versus Server

Before you begin installing LAM, please note that there are two distinct components to the LAM software: client tools and server.

What are LAM Client Tools?

LAM Client Tools are a collection of FLEXnet Publisher command line utilities that can assist you in trouble-shooting a licensing problem on your client machine. These utilities are documented in the FLEX End-User Guide.

What is a LAM Server?

If the machine will be serving licenses to other machines, or if it is a local system, it is referred to as a *Server*. Install LAM Server according to the platform-specific procedures contained in this guide.

Windows users should pay special attention when advised to uninstall previous versions of LAM.

All server users should pay special attention when advised to refer to the Technical Notes contained in the platform-specific chapters.

Linux

Introduction

This chapter describes LAM on the Linux platform and covers the following:

- "Obtaining a Server License File" on page 20

- "Installing LAM Server" on page 22

- "Controlling the License Server" on page 25

- "Using NFS with the License System" on page 28

- "LAM Technical Notes" on page 29

LAM System Requirements

Operating System

Red Hat Enterprise Linux 4 or 5

Hardware Requirements

The memory, disk storage, and bandwidth needed for the License Server is minimal. For instance, the FLEXnet Publisher daemon, lmgrd, uses about 160 KB of memory, and the Landmark daemon, licsrv, uses about 180 KB; however, with a large license file and with a large number of users, both daemons may use about six megabytes of memory. The storage requirements remain relatively static, around eight or nine megabytes.

Obtaining a Server License File

Before you begin, read the "LAM Technical Notes" on page 29.

A license file must be obtained from Landmark Graphics Corporation before you can start the license server and run the Landmark applications. To obtain a license file you can:

- fill in and return the information on the license card enclosed with CDs or

- send an email to http://css.lgc.com/psp/crmp/CUSTOMER/CRM/c/X_LGC_CSS.X _LICENSE_SS_RPT.GBL or

- fill in the information at the following Landmark site:

```
http://css.lgc.com/psp/crmp/CUSTOMER/CRM/c/X_LGC_CSS.X_LICENSE_SS_RPT.GBL
```

Some server information is needed before requesting the license. We recommend that you install LAM prior to obtaining this information. If you do not install LAM you will need to follow the instructions under the Linux section below.

If you have installed LAM,

1. Log on to the computer that will serve as the LAM 5000.0.3.0 server.

2. Type lmhostid and record the number that is returned.

If you have not installed LAM enter follow the steps listed under your Operating System type. Enter one of the following commands in a terminal window to display the lmhost ID of the system where the LAM server executes. The number can be a hexadecimal number or a decimal number. If the number is decimal, a numeral or pound sign (#) must immediately precede the decimal number.

Linux

In Linux, the ID of an Ethernet interface (or adapter) is used as the host ID of the system. Use the `ifconfig` command to find the ID of the interface. For example:

```
/sbin/ifconfig Device
```

where *Device* is the name of the interface driver (such as `eth` for an Ethernet interface) with its device number. For example, the first Ethernet adapter in the computer would be `eth0` .

The command will display the ID of the Ethernet interface as the hardware class address (HWaddr). This address is composed of twelve hexadecimal digits separated into pairs by colons. For example:

```
01:32:09:F6:A5:F5
```

For the LAM server, the host ID is the number without the colons. For example, given the address above, the following would be the ID of the Ethernet interface:

```
013209F6A5F5
```

Installing LAM Server

The steps to install LAM server are contained in this section.

The following procedure should also be used if you must reinstall the License Manager files.

1. It is preferable that you log on as root user to install LAM. Logging on as root allows you to set the automatic startup of the LAM server upon system reboot. If you install LAM as a non-root user then a root user will need to run the scripts that automatically start the LAM service upon reboot.

    Landmark strongly suggests that you set up an variable for a $LAMHOME. If you do not have $LAMHOME defined then the installation will install in $OWHOME if it is defined. If neither of these is present, the installation will be placed in the /Tmp directory. To set the $LAMHOME directory, follow the steps below.

    setenv LAMHOME /existing_directory_name

2. If you are logged in remotely to the system where you are installing LAM, do the following:

    •   On the remote system, set the DISPLAY environment variable:

        `setenv DISPLAY` *LocalMachineName*`:0.`*ScreenNumber*

    •   On the local system, allow the remote system access to the local system:

        `xhost +` *RemoteMachineName*

3. Mount the CD.

4. Go to /media/{Linux}/Disk1/InstData/VM

5. To start the installation process run the following.

    `./setup.bin`

6. A wizard will walk you through the installation process. Please monitor the display. If any errors occur in the installation process error messages with suggested actions are displayed.

Information and Error Messages

In this section are information messages and errors messages that may occur during the installation process.

Message 1

If you are running the installer as a non-root user, then you will receive the message below. This message indicates that the scripts that automatically start the LAM service upon boot will not be run. You can either exit the install, log in as root and restart the install or you can continue the installation process then run the script listed in the dialog to start the automatic service You script must be run by root.
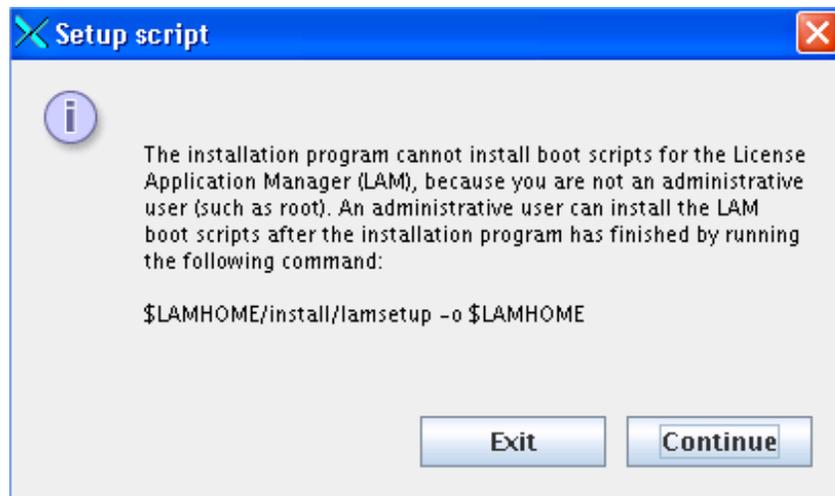
Continue running the Installation process by pressing the Return key.

After finishing the install, log in as root and run the following command.

```
$LAMHOME/install/lamsetup -o $LAMHOME
```

Message 2

If the following screen displays the automatic bootup scripts already exist in the defined directory.
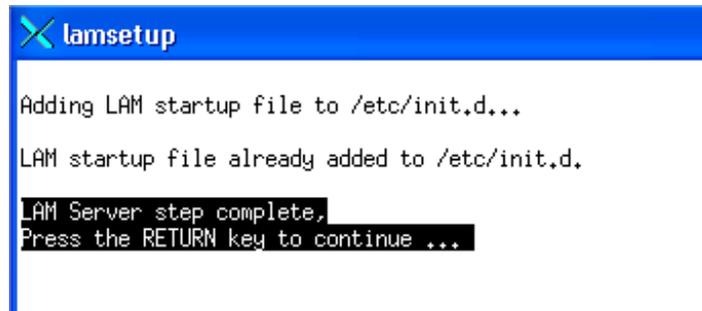
You can either:

- Select return and review the init.d/lam.Linux script. If these scripts are correct you can keep the script or

- You can delete the script. **Landmark strongly recommends that you delete the automatic bootup script and then run the following command.**

```
$LAMHOME/install/lamsetup -o $LAMHOME
```

7.   When prompted to confirming exiting CD Installer, click **Yes**.

Controlling the License Server

You must start the license server after acquiring a license file. You cannot use your Landmark software until the license server is running. You can start the license server manually, or you can configure the license server to start when the system boots.

Starting and Stopping the License Server

The system startup file on the license server is modified at installation time to start the license daemon. Use the following steps to start and stop the License Server.

- To start the server manually, log in to the workstation containing the license server, change to the LAM bin directory, and enter the startup command. For example:

  ```
  telnet nova
  ```

  ```
  login: root
  ```

  `setenv LAMHOME /pa/lam` (C Shell), *or*

  `$LAMHOME=/pa/lam;export LAMHOME` (Bourne or Korn Shell)

  ```
  cd /pa/lam/bin
  ```

  ```
  ./startlmgrd
  ```

- To stop the License Server, use the same procedure as indicated in the previous step, but substitute the following command:

  ```
  ./stoplmgrd
  ```

If the License Server Does Not Start

If your license server will not start please check the following items.

- Ping your server using the hostname

  ```
  ping mycomputer.lgc.com
  ```

- Confirm your etc/host file has the following entry:

```
127.0.0.1 localhost.localdomain localhost
```

- Confirm that your license file is correct and has read permissions.

- Confirm that your log file has write permissions.

Setting the Environment Variable

The LM_LICENSE_FILE environment variable is an variable provided by the FLEXnet Publisher license server package. It performs the following functions:

- Allows users to designate a license.dat file that the application will use to check out a license

- Allows users to specify a list of license.dat files that the application has available to use in checking out licenses.

LM_LICENSE_FILE has a syntax exactly like that of PATH. For example, C shell users would use the following commands:

```
setenv LM_LICENSE_FILE $LAMHOME/license1.dat
setenv LM_LICENSE_FILE $LAMHOME/license1.dat:$OWHOME/license2.dat
```

Defining License Groups

A License Group is one or more workstations using a single License System, including a license.dat file and one or more License Servers (represented by SERVER lines in the license.dat file).

Large sites may want to partition their workstations into distinct groups. Each workstation group would have a License System including:

- a license.dat file

- one or more workstations designated as License Servers.

The user defines LM_LICENSE_FILE to point to the license.dat file that is to be used by applications running in the group.

Group License Sharing

Groups may "share" licenses with other groups through the use of the LM_LICENSE_FILE environment variable:

- Each group has a copy of each license.dat file from the other groups (hopefully all named appropriately).

- The user environment contains the LM_LICENSE_FILE defining the exact location of each of the above license.dat files. In addition, LM_LICENSE_FILE defines an order that the application will follow when trying to check out a license from one of the groups.

Be aware of licenses common to one or more of the above license.dat files and the problem associated with searching LM_LICENSE_FILE. An example of a LM_LICENSE_FILE variable setting for a group is shown below:

```
setenv LM_LICENSE_FILE "/etc/license_g1.dat:/etc/license_g2.dat"
```

Using NFS with the License System

The License System architecture allows easy configuration for NFS clients. If clients obtain the license file through NFS mounting then the clients must set the LM_LICENSE_FILE variable to the directory where a license.dat file is located.

LAM Technical Notes

If Applications Cannot Find the License File

The License Application Manager (LAM) looks at the variable LM_LICENSE_FILE for the location of the license.dat file. If the variable has not been set or if the location in the variable is wrong LAM will look for the file in the following location.

Windows - C:\\temp\license.dat

Linux - /etc/license.dat

Environment variables locating the license are normally set up by the installation program. The variable can contain either the full path to the license file including the machine name on which it resides, or it can contain the port number and machine name of the license server that serves that license file. For example:

```
setenv LM_LICENSE_FILE 2013@HostName
```

or

```
setenv LM_LICENSE_FILE $LAMHOME/license.dat
```

or for NFS mounted computers

```
setenv LM_LICENSE_FILE nfs_mount/license.dat
```

FLEXnet Publisher performs background operations to optimize access to the license file when it is run from an application for the first time.

Although FLEXnet Publisher writes the path to the license file in either the user home directory or the root directory (depending on the platform and configuration) in a hidden file named .flexlmrc, Landmark overrides the .flexlmrc file creation in it's application scripts.

If .flexlmrc is present and you change the location or name of the license file you must remove .flexlmrc. FLEXnet Publisher will then use the new location of the license file to access the license server.

Overriding LM_LICENSE_FILE

Landmark generally uses the LM_LICENSE_FILE environment variable. Applications running for the first time may incorrectly override the setting of the LM_LICENSE_FILE variable.

> **Note: It is very important to prevent the creation of the .flexlmrc file. This causes many problems with Landmark applications.**

To prevent the creation of this file, set the environment variable

```
FLEXLM_NO_CKOUT_INSTALL_LIC to 1.
```

You should also remove any existing .flexlmrc to avoid overriding LM_LICENSE_FILE.

Restricting the Use of FLEXnet Publisher Utilities

The `lmdown`, `lmremove`, and `lmreread` utilities can be privileged, depending on the switches used when the `lmgrd` license server is started. When they are privileged, only a *License Administrator* can run the utilities. A License Administrator is a member of the `lmadmin` group, or if the `lmadmin` group does not exist, a License Administrator is a member of the group with ID 0.

To restrict who can run the utilities, `lmgrd` license server must be started with the `-2 -p` switch. For instance to start the server and restrict the use of the utilities, you might enter the following:

```
$LAMHOME/bin/startlmgrd -c /export/home/license/license.dat -2 -p
```

If you want to disable the `lmdown` or `lmremove` utilities, so that even a License Administrator can not run them, the `lmgrd` license server can be started with `-x` *UtilityName* . For example, you might enter one of the following commands:

```
$LAMHOME/bin/startlmgrd -c /export/home/license/license.dat -x
    lmdown
```

```
$LAMHOME/bin/startlmgrd -c /export/home/license/license.dat -x
    lmremove
```

```
$LAMHOME/bin/startlmgrd -c /export/home/license/license.dat -x
    lmdown -x lmremead
```

After disabling `lmdown`, you can only stop the `lmgrd` license server with the `kill` command, but you must not use the version of the command with the `-9` switch.

For more information, see the FLEXnet Publisher User's Guide on the Flexera web site at the following location:

http://www.flexerasoftware.com

ArcView Users—Using port@host Specifications

Users will be unable to start ArcView if either the Landmark or the ArcView license managers are identified by setting LM_LICENSE_FILE using a port@host <mailto:port@host>, unless the ArcView specification follows the Landmark specification. The LM_LICENSE_FILE environment variable is set in lgcenv.cf ($OEHOME/conf).

For example, if 27005@jedi are the port number and host for the ArcView license manager and 2013@buck are the port number and host for the Landmark license manager, the following results will be obtained:

- ArcView will start properly if

```
LM_LICENSE_FILE =
2013@buck:$AVHOME/sysgen/license.dat
```

  or

```
LM_LICENSE_FILE = 2013@buck:27005@jedi
```

- ArcView will not start properly if

```
LM_LICENSE_FILE = 27005@jedi:2013@buck
```

  or

```
LM_LICENSE_FILE =
$AVHOME/sysgen/license.dat:2013@buck
```

Windows

Introduction

This chapter describes LAM on Windows and contains the following:

- "Obtaining a Server License File" on page 34

- "Installing LAM Server" on page 35

- "License Server Startup" on page 37

- "LAM Technical Notes" on page 40

- "LAM Server Uninstall" on page 42

LAM System Requirements

Operating System

Windows XP and 2003 Server (32 and 64bit)

Windows 7, Vista, and 2008 Server (64bit)

Hardware Requirements

The memory, disk storage, and bandwidth needed for the License Server is minimal when compared with the capability of modern workstations, servers, and networks. For instance, the FLEXnet Publisher daemon, lmgrd, uses about 160 KB of memory, and the Landmark daemon, licsrv, uses about 180 KB; however, with a large license file and with a large number of users, both daemons may use about two or three megabytes of memory. The storage requirements remain relatively static, around seven or eight megabytes.

Obtaining a Server License File

A license file must be obtained from Landmark Graphics Corporation before you can start the license server and run the Landmark applications.

1. Log on to the server using the configuration you want to license and run under (for example, ow2003).

2. Enter the following command in a Command Prompt window:

    ```
    ipconfig / all
    ```

3. If the machine has more than one Ethernet card or is a stand-alone system, enable the "correct" card using the Hardware Manager.

4. Note the Host Name here: _____

5. Note the Physical Address here: _____

    (On Windows 2003 systems, this is a 12 digit string; for example, 00-C0-3D-68-F9-2B.) Do not include the hyphens; 00C03D68F92B would be the entry for the Physical Address.

6. To obtain a license file do one of the following:

    • fill in and return the information on the license card enclosed with CDs or
    • send an email to licenselgc@lgc.com or
    • fill in the information at the following Landmark site:

```
http://css.lgc.com/psp/crmp/CUSTOMER/CRM/c/X_LGC_CSS.X_LICENSE_SS_RPT.GBL
```

7. Place the license file in the LAM 5000.0.3.0 destination folder specified during the product installation (for example, C:\Landmark\LAM).

    • If you do not place the license file on the server you cannot use the Windows Service that automatically starts the license server upon reboot. See "Using LAM Server without Windows Service" on page 40.

Installing LAM Server

The steps to install LAM server are contained in this section.

Before you proceed with the steps in this section, uninstall all previous versions of LAM Server that have been installed on the machine. Failure to uninstall all previous versions of LAM Server before installing LAM 5000.0.3.0 will result in a duplicate FLEXnet Publisher service that replicates itself until it crashes Windows. See "LAM Server Uninstall" on page 42.

1. Log on to the server as administrator.

2. Put the appropriate Release 5000.0.3.0 CD in the CD-ROM drive. The installation will run in an automatic startup mode; if is does not, use the following steps:

    • Select **Start > Run**. The Run dialog box opens.
    • In the Open text field, type
      CDROMDriveLettter:\Setup.exe
    • Click **OK**.

    The installation wizard will appear. The wizard contains several screens that are self-explanatory. Please read through all the screens and input items where needed.

    The LAM 5000.0.3.0 program will be placed in the C:/Landmark/LAM folder specified during the product installation.

    Landmark strongly recommends

    • using the product's HOME directory as the location for the LAM 5000.0.3.0 destination folder
    • placing the license file in the Landmark\LAM destination folder.

    Following these guidelines will ensure ease of use by Landmark applications.

    ---

3. If prompted to reboot the machine, click **Yes**, reboot now, then click **Finish**.

4. Remove the CD from the CD-ROM drive.

If the license was installed prior to the LAM installation then the license server will start automatically after the reboot. If you do not have your license, please obtain it and place the license.dat file in the Landmark\Lam subdirectory. If there is an existing license.dat file, delete it prior to installing the new license file.

License Server Startup

The license server is configured during LAM installation to become a Service that starts automatically. However, you may need to perform a few customization steps.

If you did not place the license file on the server you cannot use the Service described in this section. See "Using LAM Server without Windows Service" on page 40.

If you did place the license file on the server, make sure the file is placed in the correct folder. To verify this:

1. Select **Start > Programs > Landmark> lmtools**.

2. The **Service/License tab** displays. The radio button labelled **Configuration Using Services** should be active. If it is not pre-selected, select it now. You should see LGC License Application Manager listed and already selected in the list box.
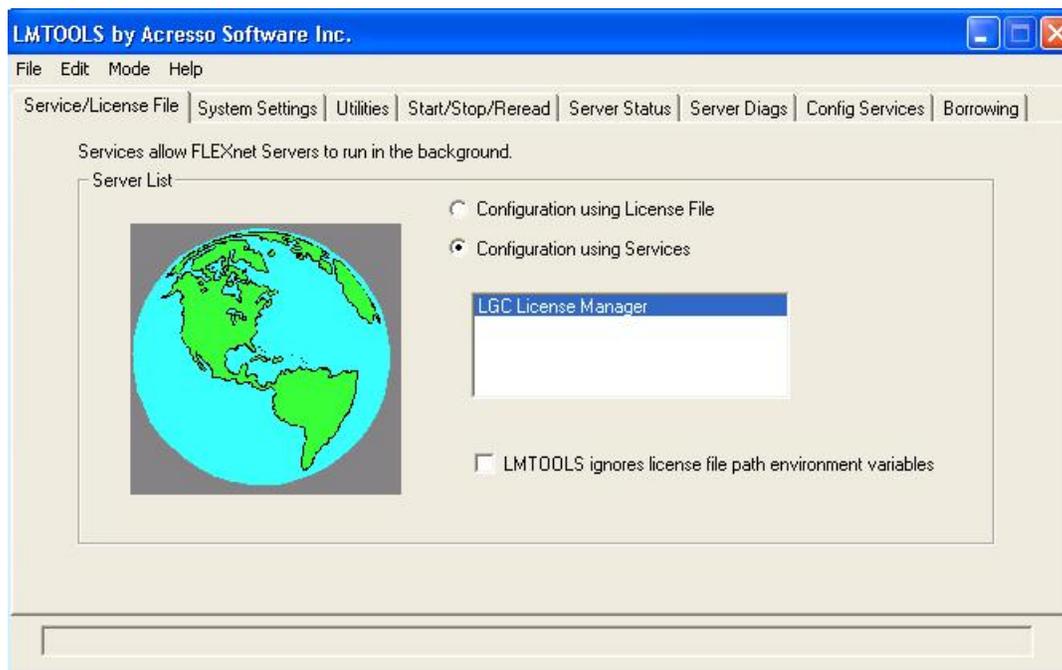
3. Click on the **Config Services** tab. Note the location of the license file (for example, C:\Landmark\LAM\license.dat) in the **Patch to the license file** item. Your license file should have been copied to this location.

4. During installation, the LAM Server was set to automatically start when Windows starts up. Verify this by looking at the **Start Server at Power Up** checkbox. If it is not checked, click on it, then click on the **Save Service** button. Click on **Yes** to confirm the save.
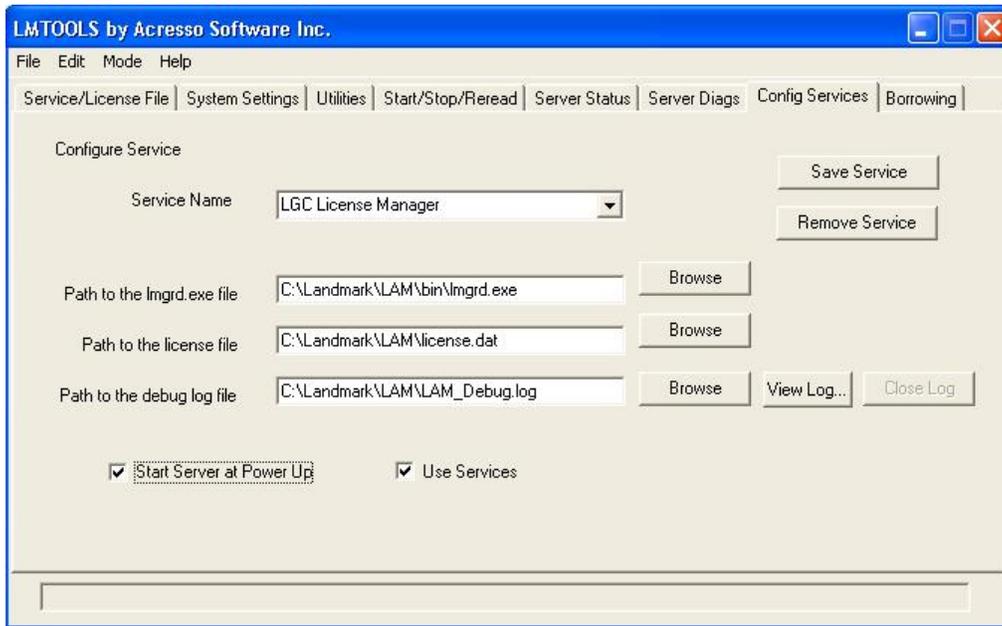
5. If you installed a new license file after rebooting and automatically starting the server, you must re-read the license file to make the server aware of the new file.

    To re-read the license file, go to step 6. Otherwise, skip to step 8.

6. Click the **Start/Stop/Reread** tab. If it is not already highlighted, select **LGC License Application Manager**, then click the

ReRead License File button.

7. If you receive an error message, click the **Stop Server** button then click the **Start Server** button. A "Server Starting" message should appear in the status bar at the bottom of the window.

8. Exit the License Tool Manager.

LAM Technical Notes

Using LAM Server without Windows Service

In order to use LAM Server on a PC as an Windows Service, the license file MUST reside on the local hardware, not across the network.

If the license file resides across the network, the server can still be launched, but not as an Windows Service. It must be run in a Command Prompt window as follows:

```
lmgrd.exe -c <license_file_path>[-l <log_file_path>]
```

The square bracketed item is optional but recommended.

LAM Server Installation Warnings

By design, InstallShield will only install the LAM Server on the officially supported platforms.

If Applications Cannot Find The License File

Environment variables locating the license are normally set up by the installation program. The variable can contain either the full path to the license file including the machine name on which it resides, or it can contain the port number and machine name of the license server that serves that license file. For example:

```
LM_LICENSE_FILE 2013@MyMachineName
LM_LICENSE_FILE \\MyMachineName\Landmark\Lam\license.dat
```

FLEXnet Publisher performs background operations to speed-optimize access to the license file when it is run from an application for the first time.

FLEXnet Publisher writes the path to the license file in the Windows registry in

```
HKEY_LOCAL_MACHINE\SOFTWARE\FLEXnet Publisher License
Manager\LICSRV_LICENSE_FILE or LGCX_LICENSE_FILE
```

If it is necessary to change the location or name of the license file being used, use the following procedures:

You may need to remove this key to get FLEXnet Publisher to use the new license file if the path has changed.

Overriding LM_LICENSE_FILE

Landmark generally uses the LM_LICENSE_FILE environment variable. Applications running for the first time may incorrectly override the setting of the LM_LICENSE_FILE variable.

> **Note: It is very important to prevent the creation of the .flexlmrc file. It's absence will expedite diagnosis and resolution of any licensing issues with Landmark application software.**

In order to disable the usage of the Windows registry setting to override LM_LICENSE_FILE set

```
FLEXLM_NO_CKOUT_INSTALL_LIC 1.
```

Use the Advanced tab of the System Control Panel to set the FLEXLM_NO_CKOUT_INSTALL_LIC variable.

You should also remove any existing Windows registry setting as discussed above to avoid overriding LM_LICENSE_FILE.

Known Problems

You can run FLEXnet Publisher on Windows laptops with multiple ethernet adapters by selecting a single internal adapter that is always present, and using the Device Manager to keep it enabled even if the laptop is disconnected from the network (deselect "allow the computer to turn off this device to save power" under Power Management for the adapter).

LAM Server Uninstall

Before installing LAM 5000.0.3.0 Server, please uninstall all existing previous versions of LAM Server. Failure to uninstall all previous versions of LAM Server before installing LAM 5000.0.3.0 will result in a duplicate FLEXnet Publisher service that replicates itself until it crashes Windows.

Stop and Remove the License Service

The license service must be stopped and removed prior to running the LAM Uninstaller. To stop the server, do the following.

1. Run LMTOOLS.EXE. The default installation location for LMTOOLS.EXE is C:\Landmark\Lam\bin. You can use Windows Explorer to access and run this executable.

2. Select the Configuration Using Services radio button, then select LGC License Application Manager if more than one entry is listed.

3. Select the Start/Stop/Reread tab and click on the Stop Server button.

4. Select the Configure Services tab.

5. Click on the Use Services check box to clear / disable both of the check boxes.

6. Click the Remove Services button.

7. Exit the LMTOOLS application.

Uninstall Previous Versions of LAM Server

Note: The license file itself is *not* removed during a LAM uninstall.

1. Log on to the server as a user with administrator privileges.

2. Select Start > Setting > Control Panel > Add/Remove Programs. The Add/Remove Programs Properties control panel opens with the Install/Uninstall tab active.

3. In the Add/Remove Programs Properties control panel

- Select Landmark LAM 2003, then click Add/Remove.

- When the Confirm File Deletion box opens, click OK.

- You may get a Details message box saying that a registry value 'HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Environment\HOME' could not be removed. Click OK.

- If prompted whether to uninstall specific files, select Yes to All.

4. Repeat Step 3 for each version of LAM that is listed in the Install/Uninstall tab.

5. Click OK to close the Remove Programs Properties control panel.

6. Reboot.

Uninstalling LAM 2003 Windows Server Manually

> **Note**
>
> The following process removes LAM from your computer by editing the registry. Changes to the registry can have serious consequences to your computer's performance. You should follow these instructions precisely to avoid possible problems.

To remove the registry entries related to LAM W2003 product.:

1. Click **Start >Run**

2. Type **regedit**.

3. Press **OK** button.

4. Expand **HKEY_LOCAL_MACHINE** by clicking on +.

5. Expand **SOFTWARE** by clicking on +.

6. Expand **Landmark Graphics Corporation** by clicking on +.

7. Select **LAM**.

8.   Press **Delete** Key or Select **Delete** from Edit menu.

9.   Confirm Key Delete by Pressing **Yes** button.

10. Expand H**KEY_LOCAL_MACHINE** by clicking on +.

11. Expand **SOFTWARE** by clicking on +.

12. Expand **Microsoft** by clicking on +.

13. Expand **Windows** by clicking on +.

14. Expand **Current Version** by clicking on +.

15. Expand **Uninstall** by clicking on +.

16. Select **{99F2697D-EDC1-11D2-B8C3-00C04F8EEBF9}**.

17. Press **Delete** Key or select **Delete** from Edit menu.

18. Confirm Key Delete by pressing **Yes** button.

19. Exit Registry Editor by Clicking on **Registry** menu and selecting **Exit**.

20. Remove the LAM directory using the Windows Explorer program.