

ARM® FLEX*Im*

License Management Guide

ARM®

ARM FLEX/m

License Management Guide

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Release Information

The following changes have been made to this book.

Change History

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Glossary

Preface

This preface introduces the *ARM FLEXlm License Management Guide*. It contains the following sections:

- *About this book* on page vi
- *Feedback* on page viii.

About this book

This book introduces the FLEX lm license management system, supplied by GLOBEtrouter, Inc., that controls the use of ARM applications.

Intended audience

This book is written for anybody who installs ARM applications. It describes the type of licenses that are available, and solutions to any problems you might encounter.

You must remember that parts of this book apply to a specific operating system only, or to a specific type of license only, so be sure that what you read applies in your case.

Using this book

This book is organized into the following chapters:

Chapter 1 *License Management Software Overview*

Read this chapter for an overview of the license management software.

Chapter 2 *Installing Licenses*

Read this chapter for instructions on installing licenses.

Chapter 3 *License Management*

Read this chapter for an explanation of the FLEX lm license management system that controls the use of your ARM software. This chapter also contains instructions for installing the parts of FLEX lm that are required by all users of your software.

Chapter 4 *Server Software*

Read this chapter if you have to install and use the FLEX lm server software. If you do not use floating licenses, you can ignore this chapter.

Chapter 5 *Troubleshooting*

Read this chapter for a description of problems that might occur and their solutions. This also contains answers to frequently-asked questions.

Glossary An alphabetically arranged glossary defines the special terms used.

Typographical conventions

The following typographical conventions are used in this book:

<i>italic</i>	Highlights important notes, introduces special terminology, denotes internal cross-references, and citations.
bold	Highlights interface elements, such as menu names. Denotes ARM processor signal names. Also used for terms in descriptive lists, where appropriate.
monospace	Denotes text that can be entered at the keyboard, such as commands, file and program names, and source code.
<u>monospace</u>	Denotes a permitted abbreviation for a command or option. The underlined text can be entered instead of the full command or option name.
<i>monospace italic</i>	Denotes arguments to commands and functions where the argument is to be replaced by a specific value.
monospace bold	Denotes language keywords when used outside example code.

Further reading

This section lists publications from ARM Limited that provide additional information on developing code for the ARM applications.

Also, see the *FLEXlm End Users Guide* supplied as a PDF file with your ARM application.

ARM periodically provides updates and corrections to its documentation. See <http://www.arm.com> for current errata sheets and addenda, and the ARM Frequently Asked Questions.

Feedback

ARM Limited welcomes feedback on license management and documentation.

Feedback on license management

If you have any problems with license management, contact your supplier. To help the supplier provide a rapid and useful response, give:

- your name and company
- the serial number of the product
- details of the release you are using
- details of the platform you are running on, such as the hardware platform, operating system type and version
- a clear explanation of what you expected to happen, and what actually happened
- the commands you used, including any command-line options
- sample output illustrating the problem
- the version string of the tool, including the version number and date.

Feedback on this book

If you have any problems with this book, send email to errata@arm.com giving:

- the document title
- the document number
- the page number(s) to which your comments apply
- a concise explanation of the problem.

General suggestions for additions and improvements are also welcome.

Chapter 1

License Management Software Overview

This chapter gives an overview of the license management software. It contains the following sections:

- *Supported platforms* on page 1-2
- *License management software* on page 1-3.

1.1 Supported platforms

Your ARM application is licensed to run in one or more of the following environments:

- Microsoft Windows
- SunSPARC workstation
- HP workstation
- Linux.

License management of floating licenses for ARM applications requires TCP/IP software to be installed, configured, and running on every relevant computer.

1.2 License management software

Many ARM applications are license-managed using FLEXlm license management software.

———— **Note** ————

The ARM License Wizard is not available if you install the ARM application in a UNIX or Linux environment. For details of license management under UNIX or Linux, refer to *Installing a temporary license with UNIX, Linux, or from the MS-DOS prompt* on page 2-3.

If you install an ARM application in a Windows environment the ARM License Wizard is displayed towards the end of the installation, as shown in see Figure 1-1.



Figure 1-1 ARM License Wizard

The ARM License Wizard helps you to:

- install a temporary license
- apply for a permanent node-locked or floating license
- install your permanent node-locked or floating license when you receive it.

Click the Next button to display the next screen shown in Figure 1-2 on page 1-4.

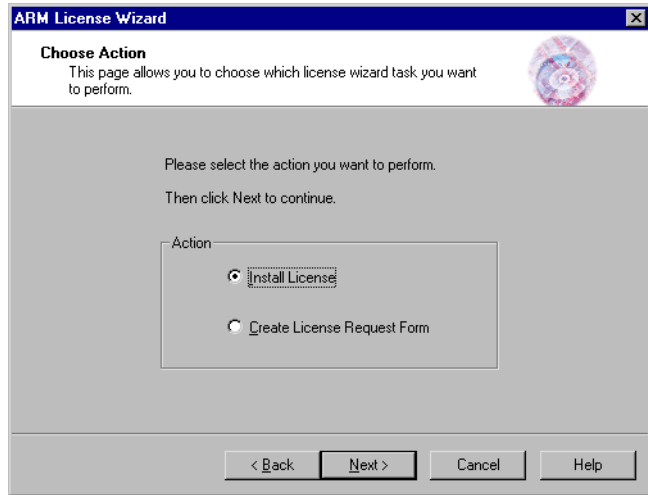


Figure 1-2 Second screen of ARM License Wizard

Select the action to perform, click the Next button, then follow the onscreen instructions (see Table 1-1).

Table 1-1 ARM License Wizard actions

To...	Select...	For details see
Install a temporary license	Install License	<i>Installing a temporary license on page 2-2</i>
Install a previously requested license	Install License	<i>Installing a permanent license on page 2-9</i>
Request a permanent license	Create License Request Form	<i>Obtaining a permanent license on page 2-5</i>

To help with your ARM application license management, you can run the ARM License Wizard from the Windows Start menu at any time after you have installed the application. Select one of the following options, depending on your ARM application:

- **Start** → **Programs** → *application_name* → **ARM License Wizard**
- **Start** → **Programs** → *application_name* → **License Installation Wizard.**

Chapter 2

Installing Licenses

This chapter explains how to install a temporary license and how to obtain a permanent license for your ARM application. It contains the following sections:

- *Installing a temporary license* on page 2-2
- *Obtaining a permanent license* on page 2-5
- *Installing a permanent license* on page 2-9
- *Where to go from here* on page 2-11.

2.1 Installing a temporary license

This section describes how to install a temporary license for your ARM application. It contains the following sections:

- *ARM applications without a temporary license*
- *Installing a temporary license with Windows*
- *Installing a temporary license with UNIX, Linux, or from the MS-DOS prompt on page 2-3.*

A temporary license lasts for a maximum of 45 days. You must obtain a permanent license from ARM Limited before this period ends if you want to continue using the ARM application. To replace your temporary license with a permanent license, follow the instructions in *Obtaining a permanent license* on page 2-5.

2.1.1 ARM applications without a temporary license

If your ARM application was not provided with a temporary license, you must apply for, receive, and install a permanent license before you can use your application. Follow the instructions in *Obtaining a permanent license* on page 2-5.

2.1.2 Installing a temporary license with Windows

Use the ARM License Wizard to install a temporary license (see *Types of license* on page 3-2 for more information about license-managed software).

To install a temporary license with Windows:

1. After your ARM application software is copied to your disk, the ARM License Wizard is displayed.
2. Select the Install License option on the second screen.
Enter the temporary license number, given on a label on the box of the ARM application, in the form arm\md-xxxxx-xxxxx-xxxxx-xxxxx-xxxxx-xxxxx-xxxx, where each x represents a numeric digit. Do not add any extra spaces, and remember to include the minus (-) characters. Leave the License File to be Installed field blank.
3. Click the **Next** button.
You are asked if you wish to update your license.
4. Click the **Next** button.
5. Click the **Finish** button.
The temporary license is installed.

6. Apply for a permanent license (see *Obtaining a permanent license* on page 2-5) to continue using your application after the temporary license expires.

2.1.3 Installing a temporary license with UNIX, Linux, or from the MS-DOS prompt

This section describes how to install a temporary license for your ARM application with UNIX, Linux, or from the MS-DOS prompt.

Your ARM application finds the license file from the contents of the environment variable `ARMLMD_LICENSE_FILE`. Ensure that `ARMLMD_LICENSE_FILE` points to wherever you have installed your license file. See *Setting ARMLMD_LICENSE_FILE* on page 2-4.

To install a temporary license:

1. Install your ARM application on the client machine.
2. Change directory to your license file directory.
3. Execute the `lmutil` program:

```
lmutil lminstall
```

You are prompted to enter the path to output the license file.
4. Press the Return key to select the default filename, which is a name based on the current date. For example, if you create a temporary license on 1st September 2001, it is stored in a file called `20010901.ltc`.
5. Enter your temporary license number.

Your temporary license is printed on a label that is stuck to the box containing the ARM application software. The label contains a license number of the form `armlmd-xxxxx-xxxxx-xxxxx-xxxxx-xxxxx-xxxxx-xxxx` where each `x` represents a number.

Type the temporary license number into the entry field, exactly as it appears on the box. Do not add any extra spaces, and include the minus (-) characters.
6. Press the Return key. If the license code is valid, the message `Good` is displayed.
7. Press the Return key twice. The data has now been converted into a readable partial license and saved to disk.
8. Combine the license created in the previous step with the correct package file for your product.

To do this, enter the command for your system:

- On UNIX or Linux, enter

```
cat filename.txt 20010901.ltc > license.dat
```

- At the MS-DOS prompt, enter
copy filename.txt+20010901.lic > license.dat.

To find the package file to use for your product, see the file called package_index.txt in your license file directory. This file lists the package files for each ARM product. For example, the package file for ARM Developer Suite v1.2 is PACKAGE_ADS_1_2.txt. Use the package file for your product.

9. Apply for a permanent license (see *Obtaining a permanent license* on page 2-5) to continue using your application after the temporary license expires.

Setting ARMLMD_LICENSE_FILE

To set the ARMLMD_LICENSE_FILE environment variable:

Windows NT/2000

Use System Properties to set the environment variable.

Windows 95/98

Edit your autoexec.bat file.

Unix/Linux Edit the .flexlsrc file in the user's home directory.

2.2 Obtaining a permanent license

To use your ARM application without interruption you must obtain and install a permanent license before the temporary license expires. If your product was not shipped with a temporary license, follow the instructions *Applying for a Windows license* on page 2-6 or *Applying for a UNIX or Linux license* on page 2-7 to obtain a permanent license.

This section contains the following sections:

- *Types of permanent license*
- *Floating licenses*
- *Applying for a Windows license* on page 2-6
- *Applying for a UNIX or Linux license* on page 2-7
- *Information required* on page 2-7.

2.2.1 Types of permanent license

The following types of permanent license are available:

- floating, also known as counted, for Windows, UNIX, or Linux workstations
- node-locked, for Windows workstations only.

These are described in *Types of license* on page 3-2.

In addition, the type of permanent license you can have sometimes depends on the software you have purchased. Therefore, your product might not support both types of license. See the installation documentation of your product for more information on the license types supported.

———— **Note** —————

When you purchased your ARM application, you also requested the type of ARM license you require. Make sure you apply for the same type of license.

Floating licenses

A floating license enables your license management to be controlled by one or by three servers. Make sure that the license you apply for has the same number of servers that you requested when purchasing your ARM application. For more information on the floating license configurations, see *Possible configurations* on page 3-4.

2.2.2 Applying for a permanent license

How you apply for a permanent license depends on whether you are using the ARM application on a Windows workstation, or a UNIX or Linux workstation.

To apply for a permanent license, read either:

- *Applying for a Windows license*
- *Applying for a UNIX or Linux license* on page 2-7.

Note

A license is usually applied for by a system administrator. If you are the system administrator, follow the steps described in these sections. If you are not the system administrator, contact your systems administrator to obtain a permanent license.

See *Information required* on page 2-7 for details on how to find some of the information you require when applying for a permanent license.

See *Installing a node-locked permanent license file* on page 2-9 for details on what you do when your permanent license file is ready to be installed and used.

2.2.3 Applying for a Windows license

Apply for a permanent license in one of the following ways:

- use a text editor to make a copy of the file `license_request_form.txt` in your application installation directory, add the necessary information, and then email the application to ARM Limited
- use the ARM License Wizard to create a file containing a completed application form and then email the file to ARM Limited.

To create a license application form with the ARM License Wizard:

1. Go to the second screen (see Figure 1-2 on page 1-4).
2. Select Create License Request Form.
3. Click the Next button.

Subsequent screens ask for your contact details, and the details of the license you require. The section *Information required* on page 2-7 describes the information you must have when you fill in the form, and how to find it. The ARM email address is given in the form.

4. When you have completed entering the information, email the completed License Request Form to ARM Limited.

2.2.4 Applying for a UNIX or Linux license

To apply for a permanent license:

1. Fill in the license application form `license_request_form.txt` in the application installation directory, then email the file to ARM Limited. A permanent license will be returned.

The information you require, and where to find it, are described in *Information required*.

2. Install the permanent license on the license server (or the three license servers) and on each workstation that has the ARM application installed.

2.2.5 Information required

If you are applying for a license on a Windows computer, you can use the ARM License Wizard. This enters some of the necessary information automatically.

Otherwise, make a copy of the license request form and edit it to include the required information. The license request form is in the file `license_request_form.txt`.

The information asked for on the application form, or by the License Wizard, for a permanent license is as follows:

End User Name/Company/Phone/E-Mail address

Your name and title, company name, telephone number and E-mail address.

Company address

Your company address, including ZIP/postcode and country.

Serial number, product name and version

This information is printed on the box of your ARM application. Do not confuse the application serial number with the temporary license key number which begins with `arm1md-`.

Type of License

Select either Node Locked or Floating License.

Hostid for a node-locked license

Enter the hostid of your computer if you are applying for a node-locked license. The hostid is derived from the physical address of a network card if one is present, otherwise it is the hard disk serial number.

If your hostid is based on the physical address of a network card and you change the network card, you must apply for a new license.

If your hostid is based on the serial number of your hard disk and you change your hard disk, you must apply for a new license.

If your computer is a lap-top that uses different network cards when docked and undocked, then use its hard disk serial number as the hostid to allow use of your application at all times.

To find the hostid of a computer, see *Hostid* on page 5-4.

———— **Caution** —————

Some software applications create virtual network cards, and certain devices might appear as a network device. To use the physical address of the network card as the hostid, you must be careful to choose the address of the actual network card, and not a virtual network address, nor the address of another device. Using the addresses of virtual network cards is not suitable, because there is no guarantee that the addresses remain the same after a reboot.

Hostname and hostid for floating licenses with a single server

If you are applying for floating licenses managed by a single server, enter the hostname and hostid of the computer that is to be the license server.

To find the hostname of a computer, see *Hostname* on page 5-4. To find the hostid of a computer, see *Hostid* on page 5-4.

Hostnames and hostids for floating licenses with a redundant server set

If you are applying for floating licenses managed by three servers, enter the hostname and hostid of each one of the three computers that are to be the license servers.

To find the hostname of a computer, see *Hostname* on page 5-4. To find the hostid of a computer, see *Hostid* on page 5-4.

License Request Filename

When the license request form is created, it is saved in this file. You can change the path or filename if you wish.

2.3 Installing a permanent license

This section describes how to install a permanent license. It contains the following sections:

- *Installing a node-locked permanent license file*
- *Installing a floating permanent license.*

2.3.1 Installing a node-locked permanent license file

If you have a node-locked permanent license, you use the permanent license file received from ARM Limited to install a license file. You can copy the information into the application license file manually, or use the ARM License Wizard.

To use the ARM License Wizard to copy the license information:

1. Select **Start** → **Programs** → **<application_name>** → **ARM License Wizard** where **<application_name>** is the name of your ARM application (for example, RealView Debugger v1.6).
2. Click the **Next** button.
3. Ensure that **Install License** is selected and click the **Next** button.
4. Use the **Browse** button to locate and select the permanent license file you have received, and click the **Next** button.
5. Select a directory to install your license file into, and click the **Next** button.
6. Click the **Finish** button.

You can now use your license-managed ARM application permanently.

2.3.2 Installing a floating permanent license

If you have a permanent floating license, you must install the license file on each workstation that has the ARM application installed, and on each license server.

If you have multiple license files for ARM products, or if you want to save the license file in a different location, you must set the environment variable `ARMLMD_LICENSE_FILE` to hold the path names of the license files.

Windows workstation

If the workstation is running Windows you can use the ARM License Wizard to install your permanent license, as follows:

1. Select **Start** → **Programs** → *application_name* → **ARM License Wizard** where *application_name* is the name of your ARM application (for example, RealView Debugger v1.6).
2. Click the **Next** button.
3. Ensure that **Install License** is selected and click the **Next** button.
4. Use the **Browse** button to locate and select the permanent license file you have received, and click the **Next** button.
5. Select a filename to install your license into, and click the **Next** button.
6. Click the **Finish** button.

UNIX or Linux workstation

If you are running your ARM application on a UNIX or Linux workstation, you must perform the installation manually. Save the contents of the license file and set the environment variable `ARMLMD_LICENSE_FILE` to point to it.

A single UNIX or Linux computer running your ARM application must have a floating license. It is permissible for a UNIX or Linux computer to run both the *FLEXlm* server software and the ARM application software.

License management server

When any license-managed ARM application feature is invoked from a workstation with a floating license, the workstation seeks permission from a server listed in the license file. *FLEXlm* server software must be installed and running on each server listed in the license file, and each server must have access to a license file on a local file system.

To install a permanent license on a license server, place a copy of the permanent license file in the same directory as the *FLEXlm* license management software.

You do not have to install the ARM application if the computer is acting only as a license management server.

2.4 Where to go from here

Read the following chapters in this book for more information on FLEX lm , including information on administering FLEX lm license servers.

Read your application *Getting Started Guide* or equivalent manual for a description of the components that make up your ARM application.

Chapter 3

License Management

This chapter explains how the use of your ARM application is controlled by FLEXlm license management software, and gives instructions for installing the parts of FLEXlm that are required by all users of the ARM application. It contains the following sections:

- *Types of license* on page 3-2
- *Possible configurations* on page 3-4
- *Information for experienced users* on page 3-6.

3.1 Types of license

Every installation of an ARM application must have access to a valid license file containing one of these types of license:

- *Temporary license*
- *Node-locked license*
- *Floating license* on page 3-3.

3.1.1 Temporary license

Installation of an ARM application includes the option to create a temporary license. A temporary license is valid for a maximum of 45 days.

The purpose of a temporary license is to allow you to use an ARM application immediately, while you apply for, obtain, and install a permanent license.

———— **Note** —————

Some ARM products are not provided with a temporary license.

3.1.2 Node-locked license

A node-locked license permits one specific computer to use an ARM application. A node-locked license is sufficient if the ARM application is required to run on one specific computer only.

A node-locked license is available in a Windows environment only. To run an ARM application on a UNIX or Linux computer, you must install a floating license.

A computer is identified by its network card address or by its hard disk serial number.

Node-locking to PC network cards

To enable a network card address to be used as the hostid for a node-locked license the system must be configured as follows:

Windows NT/2000/XP

One of the following must be installed:

- the SNMP service
- the NETBEUI Transport Protocol
- the NW Link (IPX/SPX) Transport Protocol.

Windows 98/ME

One of the following must be installed:

- the NETBEUI Transport Protocol
- the NW Link (IPX/SPX) Transport Protocol.

If the specified conditions are not met then the network card id is either not returned, or might be incorrect.

3.1.3 Floating license

A floating license, sometimes called a counted license, is more flexible. Any number of computers on a network can have the ARM application installed, and FLEX lm allows the applications to be started on any of those computers until the licensed maximum number of concurrent users is reached.

3.2 Possible configurations

You can install an ARM application on any number of computers, in the following ways:

Node-locked

Each computer with the ARM application installed has its own unique license file, valid only for the network address or hard disk serial number of that computer.

Node-locked licenses are available for Windows computers only.

Floating, with single server

One computer acts as the license management server, with *FLEXlm* server software installed and invoked with a copy of the permanent license file.

Any number of other computers on the same network can have an ARM application installed. Each one has a local copy of the permanent license file, and uses it to locate the license management server.

If the server fails, no computer can run the ARM application.

Floating, with three servers

Similar to the single-server configuration, but with *FLEXlm* server software installed and running on three computers, each with its own permanent license file.

This configuration can withstand the failure of any one license server, because the ARM application continues to run as long as any two servers are functioning.

License management servers are required only if you are using floating licenses. License management servers and workstations that have the ARM application installed can run under any mixture of Windows, UNIX, or Linux operating systems.

———— Note —————

Running a license management server under Windows 98 or Windows ME is not supported.

The example shown in Example 3-1 on page 3-5 shows a typical node-locked license. This license allows the use of the specified ARM application on a single specific computer identified by the *hostid* value of 80FF12FE.

Example 3-1 Typical node-locked license

```

INCREMENT armasm arm1md 1.2 permanent uncounted 8C7A2E4645ABA898ADE8 \
    HOSTID=80FF12FEAB43 ISSUER="ARM Limited"
INCREMENT compiler arm1md 1.2 permanent uncounted \
    4CAEBE16C038EF8B7A6D HOSTID=80FF12FEAB43 ISSUER="ARM Limited"
INCREMENT fromelf arm1md 1.2 permanent uncounted 2C8A2E06D45D8CA81BEC \
    HOSTID=80FF12FEAB43 ISSUER="ARM Limited"
INCREMENT armlink arm1md 1.2 permanent uncounted 6C2A9E268A71C496A9C2 \
    HOSTID=80FF12FEAB43 ISSUER="ARM Limited"

```

The example shown in Example 3-2 shows a typical floating license. This license allows up to 10 concurrent users of the specified ARM application, and each user obtains permission to run the application from the license server.

Example 3-2 Typical single-server floating license

```

SERVER license1.somedomain.com 785f2170 8224
VENDOR arm1md
USE_SERVER
INCREMENT armasm arm1md 1.2 permanent 10 8C7AFE76C560543E02C9 \
    ISSUER="ARM Limited"
INCREMENT compiler arm1md 1.2 permanent 10 FCBA0EA68EB14B3FCB0E \
    ISSUER="ARM Limited"
INCREMENT fromelf arm1md 1.2 permanent 10 FCEA2E76905A58AE82B5 \
    ISSUER="ARM Limited"
INCREMENT armlink arm1md 1.2 permanent 10 6C4A1ED68EDA5884A41F \
    ISSUER="ARM Limited"

```

3.3 Information for experienced users

If you are an experienced user of FLEXlm then you might find the following information about the ARM implementation of this software useful:

- You can run the license management software under either Windows, UNIX, or Linux.
- The ARM vendor daemon program is called:
Windows arm1md.exe
UNIX or Linux arm1md
- The default license file for computers running the ARM application is specified by the ARMLMD_LICENSE_FILE environment variable.
- If you are configuring FLEXlm license management servers, you are recommended to place a copy of the license file in the same directory as the FLEXlm server software on each server.

3.3.1 How FLEXlm finds a license file

The locations to be searched by ARM license-managed software are stored in the ARMLMD_LICENSE_FILE environment variable. These locations are always searched before any locations specified in LM_LICENSE_FILE, the generic FLEXlm environment variable. See *ARM license search algorithm* on page 5-7.

Under Windows it is possible, but not necessary, to store a license file location in the registry at HKEY_LOCAL_MACHINE\Software\FLEXlm License Manager\ARMLMD_LICENSE_FILE. If this registry entry exists, the location it holds is searched after any locations specified in the ARMLMD_LICENSE_FILE environment variable and before any locations specified in LM_LICENSE_FILE environment variable.

3.3.2 Using FLEXlm with more than one product

FLEXlm is a widely used product for license management, so it is possible that you have more than one product using FLEXlm. Detailed information about FLEXlm is provided in the file `enduser.pdf` located in the `flexlm` subdirectory of your ARM application installation CD-ROM. The latest version of the FLEXlm software always works with vendor daemons built using previous versions.

———— **Note** —————

If your products are supplied with different versions of FLEXlm, you must use the later version of FLEXlm for all your products.

If you have two or more products that use exactly the same license servers, as specified by the `SERVER` lines in the license files, then you can combine the license files into a single license file (see *Combined license files*). If the license files for various products specify different license servers, then you must use separate license files (see *Separate license files* on page 3-8).

Combined license files

You can combine separate license files into a single license file only if:

- the number of `SERVER` lines in each license files is the same
- the `hostid` field of each `SERVER` line in one file exactly matches the `hostid` field of each `SERVER` line in the other file.

You might combine compatible license files because you prefer to have a single license file and run only a single instance of `lmgrd`, but there is only a very small performance penalty in maintaining separate license files.

To combine the license files for a number of products:

1. Use a text editor to copy the contents of one license file into a new file.
2. Append the contents of the other license files to the new file.
3. Delete all but one set of the identical sets of `SERVER` lines in the new file.
4. Save the combined license file.
5. If the license files came from multiple vendors, you are recommended to include the path to the combined license file in the `LM_LICENSE_FILE` environment variable.

Separate license files

If you have more than one license-managed product, their licenses might be incompatible for the following reasons:

- one license is set up to use a single server (has only one SERVER line) while another license is set up to use redundant servers (has more than one SERVER line)
- the various licenses are set up to use different servers (the server host ids specified in the various license files are not exactly the same).

If licenses are incompatible, you must keep the license files separate and run a separate copy of **lmgrd** for each license file. There is very little performance penalty in doing this.

———— Note —————

FLEXlm 6.0 and later allows each software vendor to have a unique environment variable for finding their license file. If *xxx* is the name of the vendor license daemon, the environment variable name is *xxx_LICENSE_FILE*. For ARM Limited the vendor daemon is ARMLMD, so ARMLMD_LICENSE_FILE is the environment variable for ARM software. FLEXlm vendor daemons look for the vendor-specific environment variable.

Chapter 4

Server Software

This chapter describes the installation and use of FLEXlm server software. If you do not use floating licenses, you do not require FLEXlm server software and you can safely ignore this chapter. It contains the following sections:

- *Installing FLEXlm server software on Windows servers* on page 4-2
- *Installing FLEXlm server software on UNIX or Linux servers* on page 4-3
- *Running server software* on page 4-4.

4.1 Installing FLEX lm server software on Windows servers

Before any floating license can enable the use of your ARM application, you must install the FLEX lm server software on one or three servers and start it running.

———— **Note** —————

Using a Windows 98/ME machine as a license server is not supported.

On any Windows server, install the server software as follows:

1. Copy the FLEX lm files for your ARM application CD-ROM into a directory called C:\flexlm on the server. The files will be in one of the following directories:
 - flexlm\win32
 - Utilities\FlexLM\version\release\win_32-pentium
2. Add C:\flexlm to the PATH.
3. Place a copy of the file license.dat, containing the floating license obtained from ARM Limited, in the C:\flexlm directory of each server. To obtain a floating license, see *Obtaining a permanent license* on page 2-5.

4.2 Installing FLEX lm server software on UNIX or Linux servers

Before any floating license can enable the use of your ARM application, you must install the FLEX lm server software on one or three servers and start it running.

The minimum versions of UNIX or Linux platforms supported, and the subdirectory on the ARM application CD-ROM containing the appropriate software for each, are:

Solaris 2.6 flex lm /solaris

HP-UX 10.20 flex lm /hpux

Redhat Linux 6.2 flex lm /linux

Each directory contains the software in TAR file format, in a file called flex lm .tar.

On any UNIX or Linux server, install the server software as follows:

1. Copy the TAR file from the appropriate directory onto the license server machine. The destination directory must be included in your PATH.
2. On the license server machine, unTAR the file using the command:
tar xvf flex lm .tar
3. When you have unTARed the software you must run the makelinks.sh script. Change into the directory containing the unTARed software and type:
sh ./makelinks.sh
4. Ensure that a copy of the file containing the floating license obtained from ARM Limited is accessible by every computer that is to operate either as a FLEX lm server or as an ARM application user workstation. To obtain a floating license, see *Obtaining a permanent license* on page 2-5.

4.3 Running server software

Server software must be running before any user can run the ARM application with a floating license.

If there is only one server, it must be running the FLEXlm server software.

The three-server redundant model requires at least two servers to be running FLEXlm server software at any one time.

The three servers can be a mixture of Windows, UNIX, and Linux computers.

4.3.1 Configuring and starting a Windows server

To configure and start running the license server software on a Windows server:

1. Run the `lmtools.exe` program in the executable subdirectory of your ARM application installation directory. This directory will be one of the following:
 - `install_directory\application\bin`
 - `install_directory\Utilities\FlexLM\version\release\win_32-pentium`.
2. Select the Configuration using Services option, as shown in Figure 4-1.

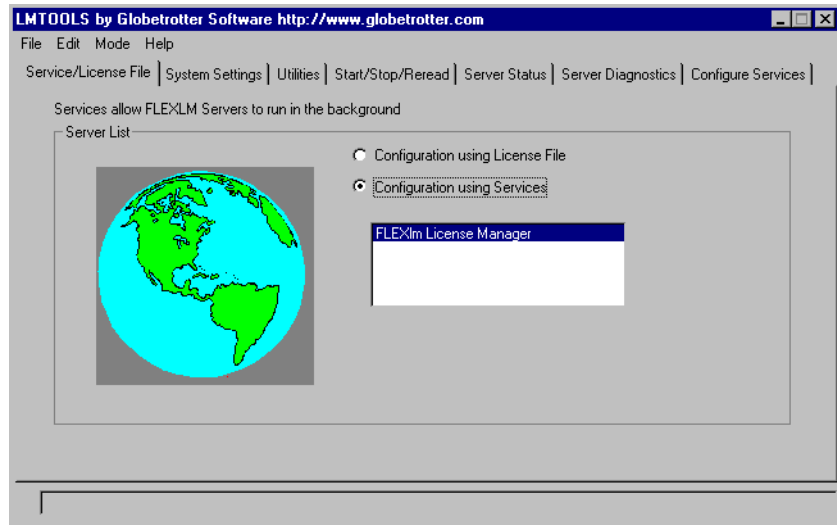


Figure 4-1 Selecting Configuration using Services

3. Click the Configure Services tab to display the dialog shown in Figure 4-2 on page 4-5. This example shows the dialog with typical paths entered.

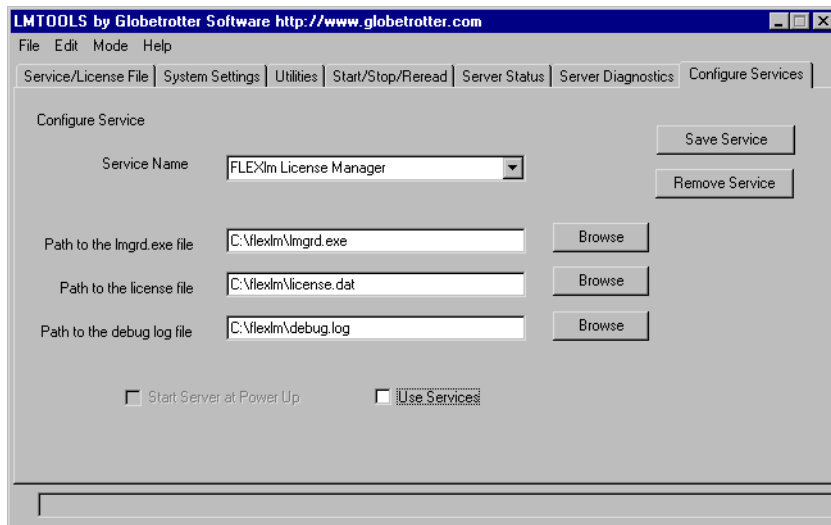


Figure 4-2 Server setup dialog

4. Enter the paths that specify the required files, or click the browse buttons to locate and select the files. You must specify paths for:
 - executable file `lmgrd.exe`
 - license file `license.dat`
 - log file `debug.log`.
5. If you want the server software to start running automatically whenever the server is powered up, click the **Use Services** checkbox, then click the **Start Server at Power Up** checkbox.
6. Click the **Save Service** button.
7. When prompted, confirm that you want to save the FLEXlm License Manager service.
8. Click the **Start/Stop/Reread** tab, and ensure that the FLEXlm License Manager service is selected.
9. Click the **Start Server** button to start running the license server software.

If you experience any problems with this procedure, refer to Chapter 5 *Troubleshooting*. For further details of the server setup dialog, see the *License Administration Tools for Windows* section of the *FLEXlm End Users Guide* supplied as a PDF file with your ARM application.

4.3.2 Starting a UNIX or Linux server

To start the license server software on a UNIX or Linux server, go to the directory containing the license server software and type:

```
lmgrd -c license_file_name -l logfile_name
```

where:

license_file_name

Specifies the fully qualified pathname of the license file.

logfile_name Specifies the fully qualified pathname to a log file.

When you have started the license server, you can type:

```
cat logfile_name
```

to see the output from the license server.

For full information on how to setup the license server, see the *FLEXlm End Users Guide* supplied as a PDF file with your ARM application.

If you experience any problems with this procedure, see Chapter 5 *Troubleshooting* or the *FLEXlm End Users Guide* supplied as a PDF file with your ARM application.

Chapter 5

Troubleshooting

This chapter first summarizes some important requirements then describes a number of possible problems and offers solutions. It also lists some frequently asked questions and gives answers. It contains the following sections:

- *Summary of requirements* on page 5-2
- *Problems and solutions* on page 5-4
- *FAQs and answers* on page 5-8
- *Further sources of information* on page 5-9.

5.1 Summary of requirements

This section summarizes some important requirements that have been described in the earlier chapters of this guide.

5.1.1 CD-ROMs available

When you purchase an ARM application you choose to receive it on one of the following CD-ROMs:

- <arm_application> for Windows, for installation on computers running MS Windows
- <arm_application> for UNIX or Linux, for installation on computers running UNIX or Linux.

This CD-ROM also contains the License Management software.

5.1.2 License management

The following configurations of license management are available:

- A node-locked license, permitting use of the ARM application on a single computer running Microsoft Windows.
- A floating counted license, that permits a specific number of concurrent users of an ARM application.

5.1.3 Types of license

The following types of license are available:

- temporary
- permanent.

The installation of the ARM application on a computer sometimes includes the installation of a temporary license. This enables you to use all the available features of the application for a maximum of 45 days.

To continue using the ARM application after the expiry of the temporary license you must apply for, obtain, and install a permanent license. This enables up to a specified number of computers at any one time to continue using specified features of the application.

———— **Note** —————

Some ARM products are not provided with a temporary license.

5.1.4 Software required

To run an application you require:

The application software

You must install the ARM application software on every computer on which it is to be run.

A license file

You must install a license file on every computer on which the ARM application is to be run, and also on any computer that is acting as a license management server.

License management software

You must install FLEX lm license management software on any computer that is acting as a license management server, and ensure the program `lmgrd.exe` is running.

In the simplest case, you can install the ARM application software, a license file, and FLEX lm license management software on a single standalone computer.

More typically, you install the ARM application software and a license file on a number of computers on a TCP/IP network, and FLEX lm license management software and a license file on one or three computers on the same network.

5.2 Problems and solutions

Possible problems that you might encounter while installing or running the ARM application and FLEXlm, and their solutions, are described in the following sections:

- *Hostname*
- *Hostid*
- *Hard disk serial number* on page 5-5
- *Communicating with the server* on page 5-5
- *License apparently missing* on page 5-6
- *License expiry warning* on page 5-6.

5.2.1 Hostname

You will require the hostnames of the computers that act as FLEXlm servers. The hostname is the name by which a computer is known on your network. To find the hostname of any computer running Windows, select:

- on Windows 2000:
Start → Settings → Control Panel → System → Network Identification
- on other windows platforms:
Start → Settings → Control Panel → Network → Identification.

Alternatively, issue the MS-DOS command:

```
ipconfig /all
```

The full hostname is displayed as the string labeled Host Name. In this context, only the first part of the hostname is required, that is the part of the string that precedes the first full stop.

5.2.2 Hostid

You might require the hostid of:

- your own computer
- any computer acting as a FLEXlm server.

The hostid of a computer is derived from the physical address of a network card if one is present, otherwise it is derived from the hard disk serial number.

The simplest way to find the hostid of a computer that has FLEXlm software installed is to open an MS-DOS window, or shell window, and issue the command:

```
!mutil !mhostid
```

This command returns the hostid based on either the physical address of a network card if one is present, or the hard disk serial number.

Under Windows, an alternative way to find the physical address of a network card is to issue the command:

```
ipconfig /all
```

The hostid is the Physical Address string with all the hyphens removed.

A lap-top computer might use different network cards when docked and undocked. In that case, use its hard disk serial number as its hostid to allow use of the ARM application at all times (see *Hard disk serial number*).

5.2.3 Hard disk serial number

If you install the ARM application on a Windows computer that has no network card, the hostid is derived from the hard disk serial number.

The only supported way to obtain the hostid is to ensure that FLEXlm software is installed, open an MS-DOS window, and issue the command:

```
lmutil lmhostid -vsn
```

Other ways of finding a hard disk serial number and transforming it into the hostid do not give the required result in all circumstances.

5.2.4 Communicating with the server

If you are running an ARM application with a floating license your workstation must be able to communicate with a server running FLEXlm server software. If you suspect a lack of communication, it is likely that the FLEXlm routines in the application are unable to make a TCP connection to the server and port specified in the license file. Possible reasons for this are:

- the wrong license file is being referenced by the application program
- the server machine specified in the license file is down
- the vendor daemon specified in the license file is not running
- the hostname in the license file is not recognized by the system
- the network between the client machine and the server machine is down
- you are mixing FLEXlm v1.5 (or earlier) and v2.1 (or later) vendor daemons in one license file, and have run `lmgrd` without the `-b` command line option
- TCP is not running on your machine.

To solve this problem:

1. Try running the `lmutil lmdiag` utility, which is designed primarily for this purpose.
2. Verify that the application is using the proper license file.
3. Verify that the specified server machine is up and reachable by executing another command that uses TCP, such as `ping`, from the client to the server.
4. Verify that the vendor daemon is running (you can use `ps` on the server to look for it). To restart it, see *Running server software* on page 4-4.
5. Examine the license log file to see if any problems are reported, particularly messages indicating that the vendor daemon has quit.
6. Run `lmutil lmstat -a` from the server machine to verify that the vendor daemon is alive.
7. Run `lmutil lmstat -a` from the client machine to verify the connection from client to vendor daemon across the network.

5.2.5 License expiry warning

For at least seven days before a temporary license expires, the ARM application displays a warning message each time you run it. This reminds you of the number of days that remain before you must install a permanent license if you want to continue using the application.

5.2.6 License apparently missing

When you try to run any ARM licensed product, you might see the message:

```
A license for the feature '<product>' could not be checked out.  
Reason: No such feature exists.
```

If so, the probable reason is that a valid license file cannot be found.

If your computer is running Windows, use the ARM License Wizard to install the permanent license file. If your computer is running UNIX or Linux, you must install the permanent license file yourself (see *Obtaining a permanent license* on page 2-5).

By default, your license file is called `C:\flexlm\license.dat` (Windows) or `/usr/local/flexlm/licenses/license.dat` (UNIX or Linux).

If you call the license file a different name, or store it in a different directory, then you must set the environment variable `ARMLMD_LICENSE_FILE` to the fully qualified filename of the license file. See also *How FLEXlm finds a license file* on page 3-6.

ARM license search algorithm

A summary follows of the algorithm used in ARM licensed products when searching for a license file:

```
if (ARMLMD_LICENSE_FILE env-var set)
{
  Search ARMLMD_LICENSE_FILE for feature.
  if (feature found)
  {
    Stop searching
  }
}
if (LM_LICENSE_FILE env-var set)
{
  Search LM_LICENSE_FILE for feature.
  if (feature found)
  {
    Stop searching
  }
}
else
{
  Search c:\flexlm\license.dat (Windows)
  Search /usr/local/flexlm/licenses/license.dat (UNIX or Linux)
  if (feature found)
  {
    Stop searching
  }
}
Print error saying that license was not found.
```

5.3 FAQs and answers

Some frequently-asked questions relating to FLEXIm are listed in this section, and answers given:

Q *Why can I not find the LMHOSTID program?*

A If you are using UNIX or Linux, you have probably not run the `makeLinks.sh` script. This script is in the directory where you unTARed the FLEXIm software. The script creates a series of links to the `lmutil` program, one of which is for `lmhostid`.

If you are using Windows, this command is not available. Instead, type `lmutil lmhostid`, but see also *Hostid* on page 5-4.

Q *How does an ARM application find its license file?*

A It uses the `ARMLMD_LICENSE_FILE` environment variable.

Q *How can I store my license files in a different location?*

A You can override the location of the ARM application license files by setting the environment variables `ARMLMD_LICENSE_FILE`. You can set these environment variables to contain one or more filenames, or directory names. If you specify a directory name, do not include the final slash character. The files and directories are searched in the order specified in the environment variables until a valid license is found. If a directory name is found then each file within the directory that has a `.lic` extension is searched.

Q *Must I have the license file on each client machine?*

A Generally, yes, you do. However, if you have a single floating license server you can specify the port and server name of the license server using the `ARMLMD_LICENSE_FILE` environment variable.

For example, set `ARMLMD_LICENSE_FILE` to `7000@licserver1` to specify that the license server is running on the machine `licserver1` and is using port number 7000.

5.4 Further sources of information

This chapter is concerned with problems and questions specific to the use of *FLEXlm* for license management and ARM applications.

For further information about software installation refer to your Microsoft Windows, UNIX, or Linux documentation. For further information about *FLEXlm* see the *FLEXlm End Users Guide* PDF file supplied as a PDF file with your ARM application.

Glossary

The items in this glossary are listed in alphabetical order, with any symbols and numerics appearing at the end.

- Deprecated** A deprecated option or feature is one that you are strongly discouraged from using. Deprecated options and features will not be supported in future versions of the product.
- FLEX/m** The license management software (see *License management software*) used to control the use of an ARM application.
- Host** In this manual, host means the computer on which you are running ARM applications or FLEX/m. In other contexts the term can mean a computer that provides data and other services to another computer.
- License management software** Software that controls the usage of software applications programs. For example, a program might be licensed for use on one specific computer only, or for simultaneous use by a limited number of users on a network. See also FLEX/m.
- Permanent license** A license that enables you to continue using an ARM application after the initial temporary license has expired. See also *License management software*.
- Platform** A combination of a particular type of computer hardware meeting a minimum specification with a particular operating system of a specific release or later.

- Script** A file specifying a sequence of commands that you can submit to the command-line interface using the obey command. This saves you from having to enter the commands individually, and is particularly helpful when you want to issue a sequence of commands repeatedly.
- Temporary license** A license that enables you to use an ARM application as soon as you have installed it, but for only a limited period. During that time you can obtain a permanent license enabling you to continue using the ARM application. See also *License management software*.

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