

ARM[®] DS-5[™]

v5

License Management Guide

ARM[®]

ARM DS-5

License Management Guide

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Release Information

The following changes have been made to this book.

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Product Status

The information in this document is final, that is for a developed product.

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Glossary

Chapter 1

Conventions and feedback

The following describes the typographical conventions and how to give feedback:

Typographical conventions

The following typographical conventions are used:

monospace Denotes text that can be entered at the keyboard, such as commands, file and program names, and source code.

monospace Denotes a permitted abbreviation for a command or option. The underlined text can be entered instead of the full command or option name.

monospace *italic*
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.

italic Highlights important notes, introduces special terminology, denotes internal cross-references, and citations.

bold Highlights interface elements, such as menu names. Also used for emphasis in descriptive lists, where appropriate, and for ARM® processor signal names.

Feedback on this product

If you have any comments and suggestions about this product, contact your supplier and give:

- your name and company
- the serial number of the product
- details of the release you are using

- details of the platform you are using, such as the hardware platform, operating system type and version
- a small standalone sample of code that reproduces the problem
- 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 tools, including the version number and build numbers.

Feedback on content

If you have comments on content then send an e-mail to errata@arm.com. Give:

- the title
- the number, ARM DUI 0577F
- if viewing online, the topic names to which your comments apply
- if viewing a PDF version of a document, the page numbers to which your comments apply
- a concise explanation of your comments.

ARM also welcomes general suggestions for additions and improvements.

ARM periodically provides updates and corrections to its documentation on the ARM Information Center, together with knowledge articles and *Frequently Asked Questions* (FAQs).

Other information

- *ARM Information Center*, <http://infocenter.arm.com/help/index.jsp>
- *ARM Technical Support Knowledge Articles*, <http://infocenter.arm.com/help/topic/com.arm.doc.faqs>
- You can find documentation for using the ARM web licensing portal on the portal itself. *ARM web licensing portal*, <https://silver.arm.com>
You can download the latest version of the *Flexera Licensing End User Guide* from the Tools Licensing section under *ARM Technical Support Knowledge Articles*. Ensure that you use the version compatible with the license utilities you are using.
The document is also supplied as a PDF with your ARM product. See the *Getting Started* document of your ARM product for more information.
- *ARM Glossary*, <http://infocenter.arm.com/help/topic/com.arm.doc.aeg0014-/index.html>
- Flexera Software, <http://www.flexerasoftware.com/>

Chapter 2

Introduction

The following topics give an overview of the license management software:

- *Supported platforms on page 2-2*
- *Tool licensing schemes on page 2-3*
- *Types of license on page 2-4*
- *Node-locked license scheme on page 2-5*
- *Floating license scheme on page 2-6*
- *About the ARM License Manager on page 2-9*
- *About the ARM web licensing portal on page 2-10.*

2.1 Supported platforms

You must ensure that Eclipse for DS-5 is supported on your chosen platform before installing it. If you are also setting up one or more floating license servers, you must confirm that the license management utilities are supported on the server.

2.1.1 Client platforms

———— **Caution** ————

Attempting to use an unsupported client platform can result in unexpected behavior.

Check the product documentation to confirm what specific operating system variants are supported.

2.1.2 Floating license server platforms

———— **Caution** ————

Attempting to use an unsupported server platform can result in licensing failures.

Check the product documentation to confirm what specific operating system variants are supported.

The floating license server platform is not required to be the same as the tools platform. For example, you might have your development tools installed on Windows and use a Linux floating license server. See your product documentation for further information.

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

2.2 Tool licensing schemes

Eclipse for DS-5 is license managed by FlexNet Publisher software from Flexera, that uses FlexNet technology. This means that a valid license file must be installed before DS-5 can be used. The following licensing schemes are available:

- [Node-locked license scheme on page 2-5](#)
- [Floating license scheme on page 2-6](#).

The licensing scheme that is used is selected when the product is purchased. If you want to change the licensing scheme that you are using, you must contact ARM License Support.

2.2.1 Licensing options for remote working

The following options are available for remote users:

- Install a license server with a floating license. Remote users can check-out licenses from the server, provided that network access is available.
- For a node-locked license, obtain a license that is registered to:
 - The host ID of the machine used by the remote user.
 - The MAC address of a USB Ethernet card. This card can then be plugged into any machine that has the ARM DS-5 tools installed.

2.3 Types of license

A license is a text file containing information about the type of license, how long the license lasts and what applications it is used for. The following types of license are supported:

Permanent A permanent license does not have an expiry date. Using the fromelf utility as an example, the format of a permanent license is:

```
INCREMENT fromelf arm1md 5.0201105 permanent ...
```

If you fulfill your license in May 2010 you can use 5.0 and any new patches that are released up to end of May 2011.

If your license period is limited by a *Service and Maintenance* (S&M) agreement, and the period lapses, your version of the product, together with any patches you received within that period continues to function as normal. However, if you want to use a patch that is later than this date, you must purchase another S&M license. If you then purchase an additional two-year license, the new license includes:

```
UPGRADE fromelf arm1md 5.0201305 permanent ...
```

If you fulfill your license in May 2010, 5.0201305 gives a user three years entitlement to download and use patches.

Term A term license has a specific expiry date. For example:

```
INCREMENT fromelf arm1md 5.0201205 31-July-2012 ...
```

This means you can use version 5.0 and any new patches to fromelf that are released before the end of May, but you get a license expiry error after the 31st July 2012.

2.3.1 See also

- [Format of a license entry on page 6-10.](#)

2.4 Node-locked license scheme

A node-locked license locks the tools to a particular computer, or more accurately to a particular host ID. How to determine the host ID is described in [Host ID on page 3-2](#). A node-locked license is a good choice for an installation that will be used by one user on a single computer.

The tools license is tied to a particular host ID. If the device you used for the host ID fails, you cannot use the licensed product. The host ID used cannot be changed without a replacement license being supplied by ARM.

The example shown in [Example 2-1](#) shows part of a typical node-locked license. This license allows the use of the specified ARM application, fromelf, on the single specific computer that is identified by its hostid value of 001F12FEAB43.

Example 2-1 Typical node-locked license extract

```
INCREMENT fromelf armlmd 5.0201105 permanent uncounted 6AB6805Z33A6 \
  HOSTID=001F12FEAB43 ISSUER="ARM Limited" \
  NOTICE="For support see http://www.arm.com/support/" \
  SN=ABCDE-12345-ZYXWV SIGN="9280 B58A 6ED0 814C 4D0C C3AD \
  5D85 ABC7 5FDF 5555 7772 F529 52E4 0C52 C836 1812 4492 3263 \
  61F4 5E7B 373F A4F4 0E6C 824B CB71 B8D8 2DB8 3D39 994F 7E1E" \
  SIGN2="ED41 1634 F698 AC5E 6645 E5B4 CEDA 97D1 A5D2 93E1 6E01 \
  937F CDD7 27A9 921B 1C0C F281 4DDE F1A2 6A20 9308 C5E1 4613 \
  8C4F AA7E A3BC 2ACE C483 0F2D B7CB"
...
```

2.4.1 See also

- [Format of a license entry on page 6-10](#).

2.5 Floating license scheme

A floating license scheme is more flexible than a node locked license but it requires more administration. It is typically used if there are more potential users than purchased licenses.

A floating license-managed installation of an ARM product consists of the following computers:

- Clients** These are computers that have your ARM development software installed on them. There can be more clients than purchased licenses. If all of the license seats are used, no additional users can use the product until one of the current users stops using the product.
- Server** This is the computer that has the license and floating license server utilities installed on it. A floating license server can also be a client, but this is not the typical mode of operation.

The floating license server controls the number of copies of the licensed product component in use at any one time, up to the maximum number of licenses purchased.

The license extract shown in [Example 2-2](#) shows part of a typical floating license. In this example the fully qualified SERVER name is `cumulus.mycompany.com`, the host ID is `785f2170` and port `8224` is being used.

This license enables up to ten concurrent users of the specified ARM application, and each user obtains permission to run the application from the floating license server. Because of the flexible way the individual parts of the tools are license managed, this floating license enables up to ten users to use the `armar` feature, while a different ten users use the `fromelf` feature. Some product licenses might restrict concurrent feature use, so check your tools documentation for details.

Example 2-2 Typical single-server floating license extract

```
SERVER cumulus.mycompany.com 785f2170 8224
VENDOR armlmd
USE_SERVER
INCREMENT fromelf armlmd 5.0201105 permanent 10 7E338B2771EA DUP_GROUP=NONE \
    ISSUER="ARM Limited" NOTICE="For support see \
    http://www.arm.com/support/" SN=ABCDE-98765-ZYXWV SIGN="8674 \
    FEE3 5830 D004 2F8D 8C07 E75C 84AA 14EB 37A0 9AD7 4D73 D34A F83A \
    EE22 B1F1 3579 54C8 54BA D9D7 5B87 E024 632C B7E0 1DF2 8526 2312 \
    27F2 DD78 C020 ABB9" SIGN2="1E17 F524 7987 9CD4 3BC2 FB34 E2FB \
    04AA 2C79 4B4C 776D 0FC3 9797 7653 2FBA 044B 2854 608B D8B9 \
    6F8A 7B69 3BFA 4AE4 2234 B9A0 0ACA 3E21 1CF8 0F58 54FE"
INCREMENT armar armlmd 5.0201105 permanent 10 8EE2C29A2DB3 DUP_GROUP=UHD \
    ISSUER="ARM Limited" NOTICE="For support see \
    http://www.arm.com/support/" SN=ABCDE-98765-ZYXWV SIGN="2B77 \
    780F 37C5 CAD3 ED05 AECA 0424 0876 6E3D 2EAC 64EB C78E 7015 6E99 \
    2119 08ED 4889 AF20 CD05 9E76 EA75 72FE 0154 CC8F CD78 AA01 \
    1824 C650 A7B5 0696" SIGN2="20EA 4015 0356 5FF8 2DE5 083A 2C9F \
    5645 B14E 220C 00E1 8970 F32E B873 AC7E 182A 20EF 27EA 7BB8 \
    B25E 08DB 70D3 AB8B 7847 DB87 B88A 5700 A079 BEB7 E3D2"...
```

Windows and Unix/Linux floating license servers and clients can be mixed in any installation. Client machines must be able to access the server machines over the *Local Area Network* (LAN).

Note

ARM does not support the use of floating licenses across *Wide Area Networks* (WANs). For performance reasons, you are strongly advised to have your floating license servers and clients on the same *Local Area Network* (LAN).

ARM software licenses support single-server and three-server floating license installations. You can only use the ARM License Manager to set up single-server floating licenses. A multiple server floating license configuration must be set up manually.

2.5.1 Single-server model

The license file is locked to the host ID of a single server that is used for controlling the licensing process. A single-server floating license model requires that the server machine is running at all times and that the client machines can access this server machine over the local area network.

If the network or single server fails, the licensed tools cannot be used until the server is restarted.

Figure 2-1 illustrates the single-server model. On the server, a license file with the corresponding server details is loaded by the floating license server processes. The client must be configured so that it references the floating license server and the port through which the license is issued. The recommended method for doing this is setting the `ARMLMD_LICENSE_FILE` environment variable on the client to `port@server`. For the example in Figure 2-1, the environment variable must be set to `8224@Server_A`.

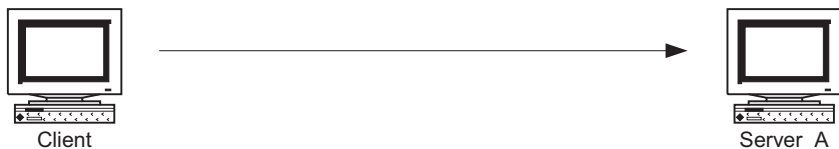


Figure 2-1 Single-server model

2.5.2 Three-server model

The license file is locked to the host ID of three separate floating license servers. This permits more reliable licensing of the product so that the failure of one server does not stop users from checking out licenses. A three-server floating license model requires that:

- All three servers must be available when the floating license server starts. One of the servers can be stopped after the initial start up.
- A minimum of two server machines are running at all times.
- All the servers can access each other over the local area network
- The client machines can also access these server machines over the local area network.

The three-server model has the following limitations:

- it is more complicated to set up than a single-server system
- three servers are required
- two servers must be operational at all times.

Because of the additional complexity of the three-server model, it is more suitable for managing ten or more total seats, where many users rely on the servers being operational.

Figure 2-2 shows the three-server model. On each of the servers, an identical license file with details of all three servers is loaded by the floating license server processes. The client must be configured so that it references all the floating license servers in addition to the ports through which the license is issued. The recommended method for doing this is setting the `ARMLMD_LICENSE_FILE` environment variable.

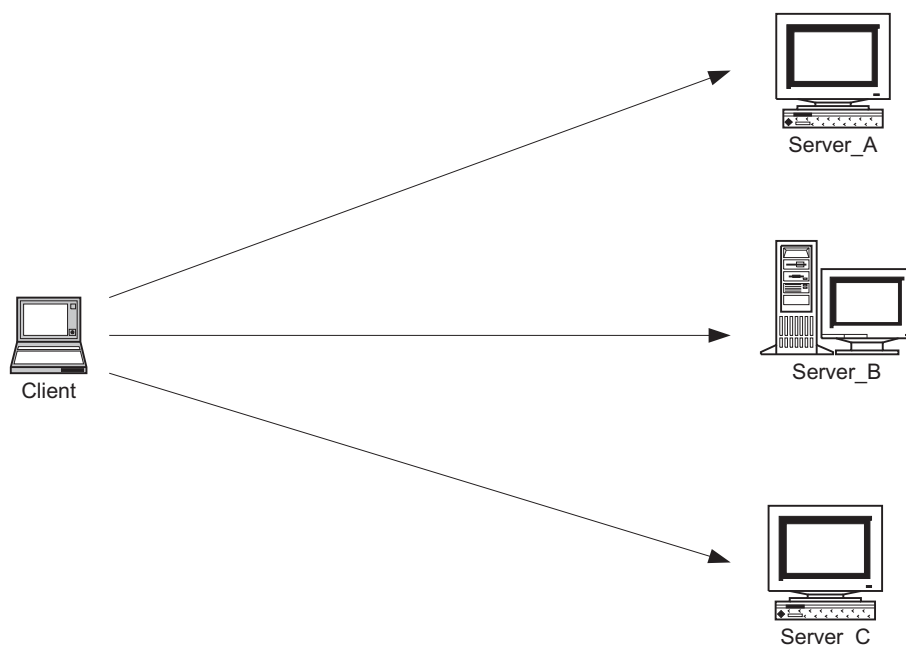


Figure 2-2 Three-server model

For the example in Figure 2-2, on Windows, the environment variable must be set to `8224@Server_A;8224@Server_B;8224@Server_C`. The first server in the list, Server_A, is the master server, and must be started before the other two servers.

Depending on your operating system, the separators for the values in the environment variable might be different. On Unix/Linux, the separator is a colon “:” rather than a semicolon “;” as on Windows.

2.5.3 See also

- [Format of a license entry on page 6-10](#)
- [Chapter 5 Using a Floating License.](#)

2.6 About the ARM License Manager

The ARM License Manager is a utility for requesting or installing licenses to use DS-5. You can use the License Manager to:

- reach the ARM web licensing portal
- install node-locked licenses
- configure a client to use floating licenses.

This document describes how to use version 5.7 of the ARM License Manager.

2.6.1 See also

- [*Manually obtaining a license from the ARM web licensing portal on page 3-4*](#)
- [*Installing a node-locked license using the ARM License Manager on page 4-2*](#)
- [*About configuring the client licensing on page 5-2.*](#)

2.7 About the ARM web licensing portal

ARM provides a web-based system that you can use to generate and view licenses for your ARM tools. This enables you to obtain a license for your tools as soon as you receive a serial number.

Detailed information on how to use the ARM web licensing portal is provided on the main page of the website.

Note

If you are saving a copy of your license file onto your computer, you must save it in plain text format. Using other file formats, such as rich text format (.rtf), can result in an unreadable license file and subsequent licensing failure.

2.7.1 See also

- [Installing a floating license on page 9-4](#)
- *ARM Self-Service Portal*, <https://silver.arm.com>

Chapter 3

Requesting Your License

The following topics explain how to request a license for your ARM software:

- [*Information required for a license on page 3-2*](#)
- [*Manually obtaining a license from the ARM web licensing portal on page 3-4.*](#)

3.1 Information required for a license

To apply for a license from ARM, you must have the following information available:

- Product serial number
- Host ID.

3.1.1 Product serial number

Your product serial number is normally of the form `xxxxx-xxxxx-xxxxx`, where `x` represents an alphanumeric character. The serial number can typically be found on a sticker on the product outer box, on a card inside the product packaging, or in the email containing the links to your product downloads.

———— Note ————

If you have an evaluation serial number, it might be of the form `LMxxx-xxxx-xxxxxx`, where `x` represents an alphanumeric character. The number of characters immediately after `LM` might be different. Serial numbers for some older ARM product are of the form `xxxxx-xxxxx-xxxxxxxxxxx` or `xxxxx-xxxxx-xxxxx-xxxxx`.

3.1.2 Host ID

The host ID is an identifier unique to a particular computer. It is used by FlexNet to lock licenses to a specific client or server machine. If an incorrect host ID is provided at the time the license is generated, then the generated license does not enable the product.

The License manager displays a list of acceptable host IDs. You need to select one hostid from the list. The selected host ID is used by the License manager to lock the license to the client or server machine.

Node-locking to network adapter cards

Node-locked licenses are normally locked to the physical address, also known as *MAC address*, of the computer network card. If you change your network card, you must apply to ARM for a new license.

You can lock your license to a portable network card such as a USB or PCMCIA network card if you require using your license on more than one computer. You can of course only use the software on one computer at a time.

To enable a network card address to be used as the host ID for a node-locked license, your Windows system must have one of the following installed:

- the SNMP service
- 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.

To obtain the computer network card address, type the command `ipconfig /all` at the command prompt and look for the Physical address line for the network card:

```
Description .....: 3Com 10/100 Mini PCI Ethernet Adapter
```

```
Physical Address .....: 00-00-12-42-41-BC
```

The host ID is the Physical Address with the “-” symbols removed, so in this example it is 0000124241bc. Alternatively if you have installed the FlexNet software onto your machine you can instead type `lmutil lmhostid` at a command prompt.

Note

- To use the physical address of the network card as the host ID, you must choose the address of the actual network card, not a virtual network address or the address of another device. Using the address of a virtual network card is not suitable because there is no guarantee that the addresses remains the same after a reboot.
 - You must ensure that the network device that you lock your license to is not shut down by your computer during any power saving operation, that might result in the network device not being available while you are trying to use the license.
-

Floating license server host ID

The host ID or host IDs required belong to the floating license server or servers and not to the client machines running the ARM licensed software. If you have already installed the FlexNet server software onto the server, then you can find the host ID using the command `lmutil lmhostid`. If you have not yet installed the FlexNet server software, then you can use the standard operating system commands listed in [Table 3-1](#) to obtain the correct host ID.

Table 3-1 Commands for obtaining host IDs

OS	Command	Server host ID type	Comments
Windows	<code>ipconfig /all</code>	ETHERNET	The host ID is returned as the 12 character hexadecimal Physical Address. Remove the hyphens, ‘-’, for the host ID.
Linux	<code>/sbin/ifconfig eth0</code>	ETHERNET	Returns a 12 character hexadecimal ‘HWaddr’. Remove the colons, ‘:’, for the host ID.
Solaris	<code>/usr/bin/hostid</code>	LONG	Returns the 8 character hexadecimal host ID.

Note

- On Linux, the device used as the server host ID must reside on `eth0`. You can reassign this address to a removable USB network device if you are using a Linux laptop, for example, and want to transfer the license between standalone computers.
 - ARM no longer supports the HP-UX floating license server.
-

3.1.3 See also

- [About the ARM web licensing portal on page 2-10](#)
- [Manually obtaining a license from the ARM web licensing portal on page 3-4](#)
- [How do I move my license to another computer? on page 6-6](#)

3.2 Manually obtaining a license from the ARM web licensing portal

To access the ARM web licensing portal using the ARM License Manager:

1. Start Eclipse for DS-5.
2. Select **Help** → **ARM License Manager** from the Eclipse for DS-5 menu to display the ARM License Manager dialog box shown in [Figure 3-1](#).

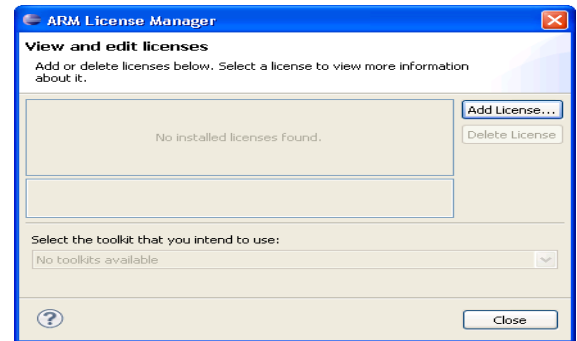


Figure 3-1 ARM License Manager

3. Click **Add License...** to display the Add License dialog box shown in [Figure 3-2](#).

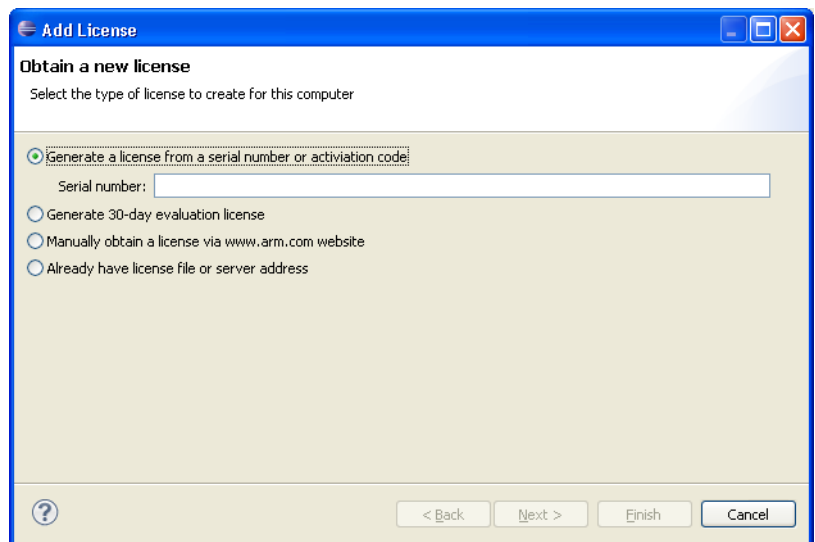


Figure 3-2 Add License dialog box

4. Select **Manually obtain a license via www.arm.com website**, then click **Next >**.
The Choose host ID page is displayed, as shown in [Figure 3-3 on page 3-5](#).

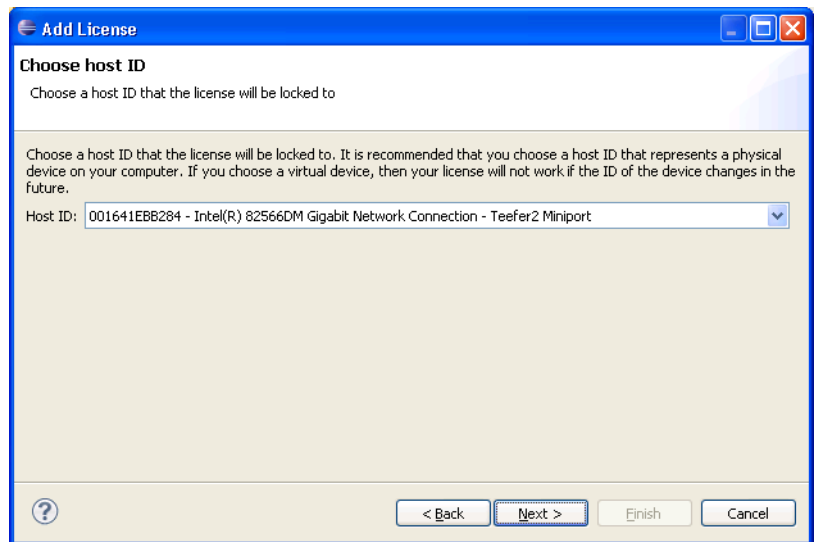


Figure 3-3 Choose host ID page

5. Select the host ID to which you want the license to be locked, then click **Next >**.
The Obtain a new license via www.arm.com page is displayed, as shown in Figure 3-4.

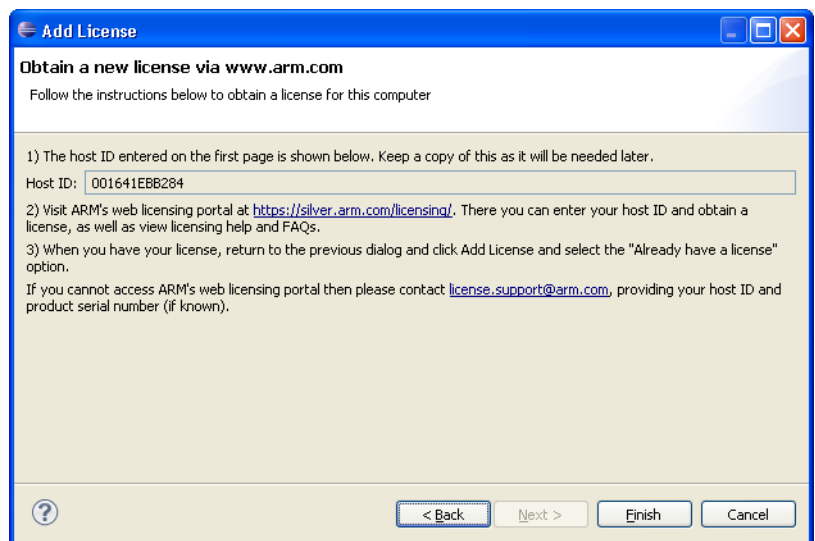


Figure 3-4 Obtain a new license page

6. Click the URL in step 2 of the Obtain License dialog box. This opens your default web browser and takes you to the ARM Login page.
7. Either log into your account, or register for an ARM account.
8. After you have logged into your ARM account, click **Generate** in the Resources list, and follow the online instructions.
See the documentation available on the portal for information on how to use it to obtain a license.
9. Click **Finish** to close this dialog box and return to the ARM License Manager dialog box.
10. Click **Close**.

11. After you have obtained your license from the web licensing portal, save it locally:
 - If you are using a node-locked license, you can install it and configure your licensing environment using the License Manager.
 - Windows floating license server administrators must follow the procedure to install the server license.

3.2.1 See also

- [*About the ARM web licensing portal on page 2-10*](#)
- [*Information required for a license on page 3-2*](#)
- [*Installing a node-locked license using the ARM License Manager on page 4-2*](#)
- [*Installing a floating license on page 9-4.*](#)

Chapter 4

Using a Node-Locked License

The following topics describe how to install a node-locked license for your ARM software product after you have retrieved the license from the ARM web licensing portal:

- [*Installing a node-locked license using the ARM License Manager on page 4-2*](#)
- [*Installing a node-locked license manually \(Windows only\) on page 4-4*](#)
- [*Installing a node-locked license manually \(Unix/Linux only\) on page 4-5.*](#)

4.1 Installing a node-locked license using the ARM License Manager

The ARM License Manager is a graphical tool that runs in Eclipse. It helps you to set up your ARM licensing environment for DS-5.

To install a node-locked license:

1. Start Eclipse for DS-5.
2. Select **Help** → **ARM License Manager** from the Eclipse for DS-5 menu to display the ARM License Manager dialog box.
3. Click **Add License** to display the Add License dialog box as shown in [Figure 4-1](#):

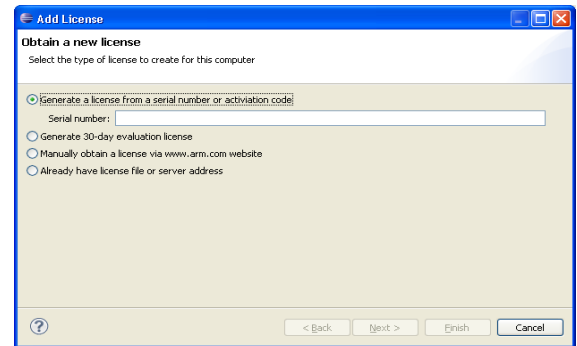


Figure 4-1 Add License dialog box

4. Select **Already have license file or server address**, then click **Next**.

The Enter existing license details page is displayed, as shown in [Figure 4-2](#).

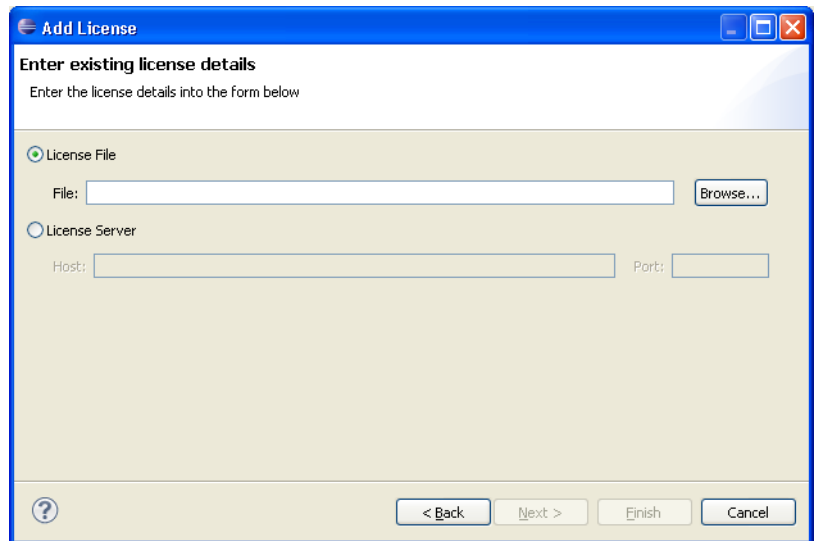


Figure 4-2 Existing license page

5. Either:
 - Continue at step 6, if you downloaded a license file from the ARM Web Licensing portal.
 - Continue at step 7 if your license is on a license server.

6. Install the license as follows:
 - a. Click **Browse** to locate and select the license file you downloaded from the ARM Web Licensing portal.
 - b. Click **Open** to select the license file.
 - c. Click **Finish** to add the license file to the list of license sources for your computer. This makes the requested changes to your ARM licensing environment.
 - d. Click **Close** to close the License Manager dialog box. The license installation is complete.
7. Specify the license server as follows:
 - a. Select **License server** and enter the license server host name and port number.
 - b. Click **Finish** to add the license server to the list of license sources for your computer. This makes the requested changes to your ARM licensing environment.
 - c. Click **Close** to close the License Manager dialog box. The license installation is complete.

4.1.1 See also

- [Node-locked license scheme on page 2-5.](#)
- [Manually obtaining a license from the ARM web licensing portal on page 3-4](#)

4.2 Installing a node-locked license manually (Windows only)

Instead of using the ARM License Manager, you can install your node-locked license manually.

To manually install a node-locked license on a Windows computer:

1. Retrieve your license from the ARM web licensing portal, as described in [Chapter 3 Requesting Your License](#).
2. Save the license file as a .lic file (for example, license.lic) and place it in an appropriate directory on your computer.
3. Create or modify an environment variable called ARMLMD_LICENSE_FILE to point to the location of your license. This location can either be the full path of the license file, or it can be the full path to the directory containing the license file. If only the directory path is specified, the license file must be a .lic file (for example, license.lic).

———— **Note** ————

The length of ARMLMD_LICENSE_FILE must not be more than 260 characters.

For example, to create the variable from the Windows Control Panel:

- a. Select **Start → Control Panel** to open the Control Panel.
- b. Double click on the **System** icon in the Control Panel. An easy way to find this icon is to change the Control Panel view to Classic View.
- c. Click the **Advanced** tab in Windows 2000 or XP, or the **Advanced system settings** task in Windows Vista or Windows 7, then click the **Environment Variables** button.
- d. Create a new system environment variable, ARMLMD_LICENSE_FILE, and set its value to point to the location of your license.

4.2.1 See also

- [Node-locked license scheme on page 2-5](#).

4.3 Installing a node-locked license manually (Unix/Linux only)

Instead of using the ARM License Manager, you can install your node-locked license manually.

To manually install a node-locked license on a Unix/Linux computer:

1. Retrieve your license from the ARM web licensing portal, as described in [Chapter 3 Requesting Your License](#).
2. Save the license file as a `.lic` file (for example, `license.lic`) and place it in an appropriate directory on your computer.
3. Create or modify an environment variable called `ARMLMD_LICENSE_FILE` to point to the location of your license. This location can either be the full path of the license file, or it can be the full path to the directory containing the license file. If only the directory path is specified, the license file must be a `.lic` file (for example, `license.lic`).

You can create an environment variable on your Unix/Linux computer using one of the following methods:

- shell commands
- `.flexlmrc`.

Using shell commands

For example, if you are using `csh` or `tcsh`, you can set the environment variable by entering:

```
setenv ARMLMD_LICENSE_FILE pathname
```

If you are using `bash` or `sh`, enter:

```
ARMLMD_LICENSE_FILE=pathname
```

```
export ARMLMD_LICENSE_FILE
```

where *pathname* is the location of the license file.

See your operating system documentation for more information on setting up environment variables.

Using the `.flexlmrc` file

You can edit the `.flexlmrc` file in your home directory to add the environment variable. Add the line:

```
ARMLMD_LICENSE_FILE=pathname
```

where *pathname* is the location of the license file.

4.3.1 See also

- [Node-locked license scheme on page 2-5](#).

Chapter 5

Using a Floating License

The following topics describe how to configure your client computer to obtain the license for its ARM tools from a floating license server:

- [About configuring the client licensing on page 5-2](#)
- [Setting up your licensing environment with the ARM License Manager on page 5-3](#)
- [Setting up your licensing environment from the Control Panel \(Windows clients only\) on page 5-4](#)
- [Setting up your licensing environment at the Command line \(Unix/Linux clients only\) on page 5-5.](#)

Note

These topics assume that you have already set up a floating license server, or servers, as described in [Chapter 9 Setting Up a Floating License Server](#).

If you use only node-locked licenses, you do not require a licence server and you can safely ignore this chapter.

5.1 About configuring the client licensing

You can use one of the following methods to configure licensing on your computer:

- ARM License Manager
- the Control Panel (Windows clients only)
- the Command line (Unix/Linux clients only).

The method you choose to configure client licensing depends on the platform you are using.

Note

You can use the license manager to configure licensing only for single-server license configurations. For a three floating license server configuration use the Control Panel or the command line, depending on the platform you are using.

5.1.1 See also

- [Floating license scheme on page 2-6.](#)

5.2 Setting up your licensing environment with the ARM License Manager

To set up your ARM licensing environment for DS-5 using the ARM License Manager:

1. Start Eclipse for DS-5.
2. Select **Help** → **ARM License Manager** from the Eclipse for DS-5 menu to display the ARM License Manager dialog box.
3. Select **Add License** to display the Add License dialog box as shown in [Figure 5-1](#):

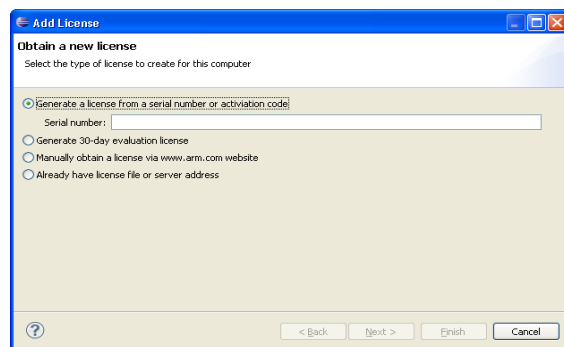


Figure 5-1 Add License dialog box

4. Click the License Server radio button.
5. Enter the server name in the Host field and the port number into the Port field.
If you are using a default server port in the range between 27000 and 27009 inclusive, omit the port number.
6. After you add your license sources, click **Add**. The new license is added to the list of server licenses shown in the ARM License Manager dialog box.

5.3 Setting up your licensing environment from the Control Panel (Windows clients only)

You can use the Control Panel to set environment variables on supported Windows variants.

Note

You must have administrator privileges to set system environment variables.

To use the Control Panel to set the environment variable:

1. Open the Control Panel by clicking on **Start** → **Control Panel**.
2. Double click on the **System** icon in the Control Panel. An easy way to find this icon is to change the Control Panel view to Classic View.
3. Click the **Advanced** tab in Windows 2000 or XP, or the **Advanced system settings** task in Windows Vista or Windows 7, then click the **Environment Variables** button.
4. Create a new system environment variable, ARMLMD_LICENSE_FILE, and set its value. This must include valid port@server information.

Note

The length of ARMLMD_LICENSE_FILE must not be more than 260 characters.

Note

If a default port in the range between 27000 and 27009 is used on the server, then the port number can be omitted in the environment variable, but you must include the '@' symbol before the name of the server. For example, @my_server.

For example:

- If you are using a single-server floating license, set the environment variable value to something similar to:
8224@my_server
- If you want to refer to more than one floating license server, set the environment variable value to something similar to:
8224@my_serverA;8224@my_serverB;@my_serverC
The master server appears first, and in this example is my_serverA. The entry for my_serverC is not preceded by a port number because in this example a default port number is being used.

5.4 Setting up your licensing environment at the Command line (Unix/Linux clients only)

On Unix or Linux clients, you can set the environment variable `ARMLMD_LICENSE_FILE` to include port@server information.

Note

If a default port in the range between 27000 and 27009 is used on the server, then you can omit the port number in the environment variable, but you must include the '@' symbol before the name of the server. For example, @my_server.

You can configure your Unix/Linux client to obtain its license from a server using shell commands, or by editing the `.flexlmrc` file.

Setting `ARMLMD_LICENSE_FILE` with shell commands

If you are using `csh` or `tcsh`, you can set the environment variable for a single server by entering:

```
setenv ARMLMD_LICENSE_FILE 8224@my_server
```

If you are using `bash` or `sh`, enter:

```
ARMLMD_LICENSE_FILE=8224@my_server
```

```
export ARMLMD_LICENSE_FILE
```

If you want to refer to more than one floating license server, you can add these values to your environment variables. For example, in `csh` or `tcsh` enter:

```
setenv ARMLMD_LICENSE_FILE 8224@my_server1:8224@my_server2:@my_server3
```

In this example, the port number is omitted for `my_server3` because a default port is being used. In all cases you might want to add the environment variable settings to your startup scripts so that your licensing is set up automatically when you log in.

Setting `ARMLMD_LICENSE_FILE` in the `.flexlmrc` file

You can edit the `.flexlmrc` file in your home directory to set up client licensing by adding the line:

```
ARMLMD_LICENSE_FILE=value
```

where *value* is the value for the environment variable, such as `8224@my_server`.

Chapter 6

Frequently Asked Questions about Licensing

The following topics provide information on licensing issues that are not specific to a particular licensing configuration:

- *How does FlexNet find a license file?* on page 6-2
- *Can I use FlexNet with more than one product?* on page 6-3
- *How do I combine licenses?* on page 6-4
- *How do I find my product serial number?* on page 6-5
- *How do I move my license to another computer?* on page 6-6
- *Do the ARM development tools support BORROW?* on page 6-7
- *Do ARM licenses support queuing?* on page 6-8
- *Why can I not find the lmhostid utility?* on page 6-9.
- *Format of a license entry* on page 6-10

Note

Additional questions and answers on tools licensing issues are available on the ARM website, <http://www.arm.com/support/>.

6.1 How does FlexNet find a license file?

The locations to be searched by ARM license-managed software are stored in the ARMLMD_LICENSE_FILE environment variable. You can set ARMLMD_LICENSE_FILE so that it contains one or more file names, directory names, or port@server values. If you specify a directory name, you must not include the final slash “/” character. The locations are searched in order 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. For ARM licensed tools, the contents of ARMLMD_LICENSE_FILE are searched before the contents of the generic FlexNet environment variable, LM_LICENSE_FILE.

6.1.1 ARM license search algorithm

An overview of the algorithm used by ARM licensed products when searching for a license file is listed in [Example 6-1](#):

Example 6-1 Search algorithm

```

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/Linux)
    Search ~/.flexlmrc (Unix/Linux)
    if (feature found)
    {
        Stop searching
    }
}
Print error saying that license was not found.

```

6.2 Can I use FlexNet with more than one product?

FlexNet Publisher, formerly known as FLEXnet and FLEXlm, is a widely used product for license management, so it is possible that you have more than one product using FlexNet. If you are using floating licenses, the latest version of the FlexNet floating license server daemon `lmgrd` is backwards compatible with vendor daemons built using previous versions.

Note

If your products are supplied with different versions of FlexNet, you must use the latest version of the FlexNet server daemon, `lmgrd`, for all your products.

See the version of the *Licensing End User Guide* supplied with your tools for further information on using licenses from multiple vendors together.

You might be able to combine multiple license files.

6.2.1 See also

Tasks

- [How do I combine licenses? on page 6-4.](#)

6.3 How do I combine licenses?

You can combine license files together if you are using more than one licensed application, or are adding a new feature to an existing license.

There are examples of license file merging in the *Licensing End User Guide*.

Note

ConnectLM also provides a tool for merging licenses, see the *FAQ How do I merge my license files*, <http://infocenter.arm.com/help/topic/com.arm.doc.faq/ka3935.html>.

Combining node-locked licenses

Node-locked licenses can be combined if they have been generated for the same host ID.

To combine multiple node-locked licenses into a single file, copy and paste all of the INCREMENT lines from your separate license files into a new license file.

Combining floating licenses

Floating licenses can be combined when both the following conditions exist:

- The number of SERVER lines in each license file is the same.
- The host ID field of each SERVER line in one license file exactly matches the host ID field of each SERVER line in the other license file.

To combine floating license files:

1. Open one of the license files with a text editor.
2. Copy the other license file into the text editor and then remove any duplicate SERVER and VENDOR lines.

Always use the newest version of `lmgrd` and the newest version of each vendor daemon, for example, `armld`, provided with your ARM products.

6.4 How do I find my product serial number?

Your product serial number is normally of the form `xxxxx-xxxxx-xxxxx`, where `x` represents an alphanumeric character. The serial number can typically be found on a sticker on the product outer box, on a card inside the product packaging, or in the email containing the links to your product downloads.

Note

If you have an evaluation serial number, it might be of the form `LMxxx-xxxx-xxxxxx`, where `x` represents an alphanumeric character. The number of characters immediately after `LM` might be different. Serial numbers for some older ARM product are of the form `xxxxx-xxxxx-xxxxxxxxxx` or `xxxxx-xxxxx-xxxxx-xxxxx`.

After you have installed your ARM software, you can find the serial number embedded within the license file you installed. Look for a string containing `SN=xxxxx-xxxxx-xxxxx`. The text following the `SN=` label is your serial number.

6.5 How do I move my license to another computer?

To move your ARM tools license from the original computer for which it was generated to another computer within the same company, you must obtain a new license file from ARM with a new host ID.

A host ID is usually generated from an Ethernet card MAC address. For more information, see Host ID in [Information required for a license on page 3-2](#).

For additional information on license rehosts, see the FAQ How do I move my license to another machine, <http://infocenter.arm.com/help/topic/com.arm.doc.faqs/ka3660.html>.

6.6 Do the ARM development tools support BORROW?

ARM license-managed tools do not support the use of the FlexNet BORROW attribute.

If you want to use your software tools away from the network on which you have your floating license server, then you require additional licenses.

If you use your ARM tools on a computer when away from your company network, you are advised to obtain a node-locked license that is locked to the MAC address of a removable network card. You can transfer the card between users if a different computer is used remotely at some other time.

If your ARM software does not support node-locked licenses, you require a new floating license. Although not normally recommended, you can have the server running on the same computer as the tools.

6.7 Do ARM licenses support queuing?

ARM floating licenses support license queuing when used with the appropriate version of the FlexNet server software supplied with the product.

If a server receives a request for a license but no seats are currently available, the request is queued. The request is fulfilled when a seat becomes available. The server log reports a DENIED message. See [Why am I getting “DENIED” messages in the server log? on page 8-10](#). However there is not a corresponding license failure on the client side, so for the end user, license queuing is transparent.

Note

License queuing fails if the server is hosting a combination of ARM Developer Suite™ (ADS) licenses and newer ARM tools licenses. If you require the license queuing feature, you must move the ADS licenses to a separate server. See, [How do I move my license to another computer? on page 6-6](#)

6.8 Why can I not find the lmhostid utility?

If you are using Unix/Linux, you have probably not run the `make1inks.sh` script. The script creates a series of links to the `lmutil` program, one of which is for `lmhostid`. This script is in the appropriate directory for your platform. See the *Getting Started* for your ARM product for the location of this directory.

If you are using Windows, the `make1inks.sh` script is not available. Instead:

1. Open a command prompt.
2. Change to the directory where your license utilities are installed,. This is typically `C:\FLEXlm`.
3. Type `lmutil lmhostid` at the command prompt.

6.9 Format of a license entry

A node-locked or floating license has one of the following formats:

INCREMENT *feature* arm_lmd *version* *expiry_date* ...

UPGRADE *feature* arm_lmd *version* *expiry_date* ...

The fields are:

feature The name of the licensed feature.

version The version number of the licensed feature. This can have one of the following formats:

a.b

a.byyyymm

where:

a major version number of the licensed feature

b minor version number of the licensed feature

yyyy year

mm month number.

For example, 1.0201011 indicates that support for the license feature in version 1.0 expires in November 2010.

Typically used if you have a *Service and Maintenance* (S&M) agreement that limits the period you are allowed to install and use patches.

expiry_date The date that the license expires for the specified feature, and has one of the following values:

- permanent
- *dd-mm-yyyy*, for example 31-May-2012.

This determines the type of license.

The date embedded into the version controls your entitlement to patches, whereas the *expiry_date* field limits your ability to use the tools.

6.9.1 See also

- [Node-locked license scheme on page 2-5](#)
- [Floating license scheme on page 2-6.](#)

Chapter 7

Troubleshooting client configuration

The following topics describe issues relating to the configuration of clients in either node locked or floating license systems:

- *License apparently missing error on page 7-2*
- *My node-locked tools fail with FlexNet error -8: Invalid license key (inconsistent authentication code) on page 7-3*
- *How can I change the order in which my license sources are accessed? on page 7-4*
- *How can I optimize floating license checkout times? on page 7-5*
- *Can I use a remote floating license server? on page 7-7*
- *Why am I getting FlexNet error -15: Cannot connect to floating license server system? on page 7-8.*

7.1 License apparently missing error

When you try to run an ARM licensed product, you might see a message that says that a license cannot be obtained.

7.1.1 FlexNet error -1: Cannot find license file

If you get a FlexNet licensing error stating that the license file cannot be found, it might be because there is not a valid license file on the license search path shown in the error message.

If you are using a node-locked license, use the ARM License Manager to install the permanent license file. See [Installing a node-locked license using the ARM License Manager on page 4-2](#).

If you are using a floating license, you can manually configure the client to use the permanent license file. See [Installing a node-locked license manually \(Windows only\) on page 4-4](#) or [Installing a node-locked license manually \(Unix/Linux only\) on page 4-5](#).

7.1.2 FlexNet error -5: No such feature exists

If you see a license error message stating that no such feature exists, you might be trying to use a component for which there is no corresponding line in the license file. Possible causes are:

- You might have previously used a license for an evaluation version of the ARM tools but have since installed the full version. If you do not reconfigure your client computer to use the full tools license, you are not be able to use the full version, even if the evaluation license has not expired. You must use a license compatible with the type of tools you have installed on your computer. To solve this problem, remove any old or expired licenses and reconfigure your client computer to use your new license. See [Chapter 5 Using a Floating License](#).
- You might be trying to use a feature that is available only in the Professional version of the product, but you do not have a license for the Professional version of the product. You must purchase license for the Professional version to use the feature.

7.1.3 See also

Reference

- [armlmddiag utility on page 10-2](#).

7.2 My node-locked tools fail with FlexNet error -8: Invalid license key (inconsistent authentication code)

This error can be reported if your license file has been corrupted, moved, or modified in a way that is not allowed. If this has happened, reinstall a clean version of your license file. For example, You can use the ARM web licensing portal to retrieve your original license. See [Manually obtaining a license from the ARM web licensing portal on page 3-4](#).

7.2.1 See also

Reference

- [armlmddiag utility on page 10-2](#).

7.3 How can I change the order in which my license sources are accessed?

If you have more than one license source, you might want to change the order that they are used by the client computer. For example, you might have two separate floating license servers, each with its own distinct license file, and one of these servers has more available licenses for a given product version than the other and you want to reference the server with more seats first.

If you are using a supported version of Windows, you can use the Windows Control panel to modify the ARMLMD_LICENSE_FILE environment variable. See [About configuring the client licensing on page 5-2](#) for more details.

If you are using Unix or Linux, you might have to modify the ARMLMD_LICENSE_FILE environment variable from the command line. Alternatively you can have the environment variable set automatically when you start a new shell. See [Setting up your licensing environment at the Command line \(Unix/Linux clients only\) on page 5-5](#) for more details.

Note

On Windows, the length of ARMLMD_LICENSE_FILE must not be more than 260 characters.

7.3.1 See also

Reference

- [armlmdiag utility on page 10-2](#).

7.4 How can I optimize floating license checkout times?

When using a floating license server or servers, each time a client computer starts one of the ARM development tool executables, a license checkout request is sent across the network to the floating license server to obtain a license. There are a number of ways of configuring a client machine to check out a floating license from a floating license server and it is worth ensuring that your system is configured in such a way that the time taken for these checkout requests is minimized. These are:

- Use the ARMLMD_LICENSE_FILE environment variable to point to your floating license server or servers. This environment variable is used first by the ARM license utilities, so it is preferable to use ARMLMD_LICENSE_FILE rather than LM_LICENSE_FILE, the generic FlexNet environment variable.
- Set ARMLMD_LICENSE_FILE to port@server rather than pointing it to a local copy of the license file. This removes the delay incurred by the tools having to process the local copy of the license file to find out the name of the floating license server.

Note

You can also use this variable to specify multiple locations. You can use a list separated by semi-colons on Windows, or colons on Unix/Linux. Each location is checked in turn until a valid license is found.

- Check for network problems. If everything is working normally, a license is granted in about the same time it takes to *ping* the server where the license resides.
If the checkout takes a long time, it might be because of domain name resolution issues. If this is the case you can sometimes overcome the problem by substituting the server IP address for the server name where it appears in the license search paths.
- Check for server problems, particularly if you have set up the ARMLMD_LICENSE_FILE environment variable to point to multiple servers. You might find it helpful to look through the server log.
If any of the license search paths point to a server which is no longer running the license management software, there will be a delay while FlexNet waits for the license request to time out before moving onto the next location in the search path.
Ensure that there are no spurious entries here that might cause such a delay and that all referenced servers are running.
To temporarily work around this problem, you can modify the order in which the servers appear in the ARMLMD_LICENSE_FILE environment variable. See [How can I change the order in which my license sources are accessed?](#) on page 7-4.
- Set the environment variable TCP_NODELAY to 1. This improves FlexNet floating license server system performance when processing license requests.

Caution

Setting this environment variable might cause an increase in network traffic.

Note

On Windows, the length of ARMLMD_LICENSE_FILE must not be more than 260 characters.

7.4.1 See also

Reference

- [armlmddiag utility](#) on page 10-2.

Other information

- *How can I improve the build time of my application?*,
<http://infocenter.arm.com/help/topic/com.arm.doc.faqs/ka4022.html>

7.5 Can I use a remote floating license server?

Although it is technically possible for a client machine to obtain a license from a remote floating license server across a *Wide Area Network* (WAN), this is not a supported mode of operation for ARM development tools and you are strongly discouraged from attempting it. When you set up your licensing system, ensure that client machines have access to local floating license servers across your *Local Area Network* (LAN).

If you do attempt to use a WAN server, the additional network delays connecting to the server can dramatically increase the time taken by the ARM build tools to build your code. In many cases builds can actually fail if the time delays caused are too great. The high license traffic caused can also significantly increase the overall traffic on your WAN, that might lead to more general problems on your network.

7.6 Why am I getting FlexNet error -15: Cannot connect to floating license server system?

If you are using ARM software products with a floating license, your workstation must be able to communicate with a server running FlexNet server software. If such communication cannot be established, a commonly reported FlexNet error code on the client is -15. Possible reasons for this are:

- the wrong license file is being referenced by the application program
- the floating license server specified in the license file has not been started
- you are using the wrong port@host information
- 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

To solve these issues, check that you have started your floating license server or servers. See [Chapter 9 Setting Up a Floating License Server](#). You must also check that your client have been correctly configured. See [Chapter 5 Using a Floating License](#). The Tool Licensing FAQs on the ARM Technical Support website might also be helpful.

You can try running tests on your server or client computers to identify possible causes of the failure:

1. Try running the `lmutil lmdiag` utility, which is designed primarily for this purpose.
2. Verify that the application is referencing the correct license file.
3. Verify that the vendor daemon, `arm1md`, is running. You can use `ps` on the server to look for the daemon on Unix/Linux, or the Windows Task Manager.
4. Examine the server log file to see if any problems are reported, particularly messages indicating that the vendor daemon has quit.
5. Run `lmutil lmstat -a` on the server machine to verify that the vendor daemon is alive.
6. Run `lmutil lmstat -a` on the client machine to verify the connection from client to vendor daemon across the network.

If none of the above tests identifies the cause of the licensing failure, check whether your client machine can communicate to the server over TCP/IP using a utility such as `ping`. If this fails, then it is possible that communication is being blocked between the server and client.

7.6.1 Firewalls

Your floating license server and client might be on opposite sides of a firewall. If so, you must configure the firewall to allow access to fixed ports for both the `lmgrd` and `arm1md` license daemons. Define these ports in the server license file by modifying the top of the license file as shown, substituting your own values:

```
SERVER myserver server_hostid 8224
```

```
VENDOR arm1md port=portnumber
```

7.6.2 Subnets

If your floating license server and client are on different subnets, then using the fully qualified domain name or IP address of the server might solve the problem. Using the IP address normally circumvents issues arising from domain name resolution.

7.6.3 Server hostname length

There is a character length limit for server hostnames used in the license files. For FLEX/m 8.1b and older, this limit is 32 characters. If you are using newer versions of FlexNet, the limit is 64 characters. If your floating license server name is too long, you must use the IP address of the server instead of the hostname in the license file and client license environment variable.

7.6.4 Intermittent failures

You might encounter intermittent licensing failures if your server is under very heavy load, for example, if you use automated build scripts. These failures can be caused by intermittent networking failures. The current versions of the ARM development tools are more resilient with respect to such temporary network interruptions. If you are using older tools, consider adding retry capability to your build scripts to work around the behavior.

7.6.5 See also

Reference

- [armlmddiag utility on page 10-2.](#)

Chapter 8

Troubleshooting server configuration

The following topics cover issues relating to the configuration of floating license systems:

- *How can I run my FlexNet server more securely?* on page 8-2
- *Server debug log reports “Invalid license key (inconsistent authentication code)”* on page 8-3
- *Can I define the order in which licenses in a mixed version license file are issued?* on page 8-4
- *How can I tell how many floating licenses are in use?* on page 8-5
- *Server debug log reports “(armlmd) cannot open lock file” or “cannot communicate with lmgrd”* on page 8-6
- *What version of the floating license server daemons must I use?* on page 8-7
- *How can I limit user access to particular licensed features?* on page 8-8
- *Why am I getting “DENIED” messages in the server log?* on page 8-10
- *How can I manage the size of the server debug log file?* on page 8-11.

8.1 How can I run my FlexNet server more securely?

To run your FlexNet server more securely:

- Run the `lmgrd` and vendor daemons in a least privileged security level.
- Limit access to administrative users only by running the license server manager in a restrictive mode.
- Do not use the default 27000 TCP port.
- Utilize the recommended security settings offered by the Operating System (OS) vendors that resist the buffer/stack overflow attacks.

For more details:

1. Open the *Flexera Software*, <http://flexerasoftware.com/> web site in another browser window or tab.
2. Click **Support**.
3. Click **Knowledge Base**.
4. Click **Security Notices**.
5. Do the following:
 - a. Enter **lmgrd** in the Search field.
 - b. Change Product to **Security Notices**.
 - c. Select **KB Articles and Error Documents**.
 - d. Click **Go**.
 - e. Click on the title of the article to view the details.

8.2 Server debug log reports “Invalid license key (inconsistent authentication code)”

A common cause for an invalid license key error message is that you have changed non-user editable parts of your license file. The only parts of the license you are allowed to edit are the host name and the floating license server daemon port numbers, and the daemon path name if it is set by default to `path_to_armlmd`. You can add certain content, such as a path to an option files or SORT syntax. See the *Licensing End User Guide*.

The invalid license key message can also indicate that you are running an older version of the FlexNet floating license server software that is not compatible with the format of the license file that you have installed. This can happen if you upgrade your development tools to a later version.

See the FAQs in the ARM technical support website, under Tool Licensing, for more information about the versions of floating license server software that are compatible with versions of the ARM software development tools.

8.2.1 See also

Reference

- [armlmddiag utility on page 10-2](#).

8.3 Can I define the order in which licenses in a mixed version license file are issued?

Whether you can control the order in which licenses are issued by the server is dependent upon the version of the floating license server software you are using.

8.3.1 FlexNet v11.10 floating license server software

The FlexNet v11.10 floating license server software has a defined default order in which license files are sorted when parsed by the floating license server at startup. The default basic sorting rules within a single license file, from highest to lowest priority, are:

1. INCREMENT entries are sorted alphabetically.
2. Uncounted INCREMENT entries are issued before counted INCREMENT entries.
3. Lower versions for an INCREMENT are issued before higher versions.

———— **Note** ————

The FlexNet documentation states that higher versions take precedence over lower versions but Flexera support has confirmed this is incorrect.

4. Licenses with the most recent START= *date*, if specified, are issued before older licenses.

To define the use order of your licenses, add a SORT=*nnn* entry in the required INCREMENT line, where *nnn* is an integer from 000 to 255. The lower the SORT value, the higher the priority. The default sort value is 100. As this value is used when no SORT is defined by the user, lines with values less than 100 appear before unmodified lines, and lines with values greater than 100 appear after unmodified lines.

For example, if you have compiler INCREMENT entries in your license file with versions 3.1 and 4.0, you can ensure that the 3.1 license is made available first if you add a SORT attribute to the 3.1 INCREMENT as follows:

```
INCREMENT compiler arm1md 3.1 permanent 5 271940CDEFA0 \SORT=010 DUP_GROUP=UHD
ISSUER="ARM Ltd" ...
```

8.3.2 FLEXlm v9.2 or earlier floating license server software

If you are using FLEXlm v9.2 or earlier floating license server software, there is no fixed order in which licenses for different versions of tools are issued. This might mean that older versions of the development tools check out licenses for a newer version, even though the older licenses are available. You might find that an options file allows you to limit which users have access to what versions of a tools license. See [How can I limit user access to particular licensed features? on page 8-8](#).

8.4 How can I tell how many floating licenses are in use?

You can run the `lmutil lmstat` command, with appropriate arguments, on the server to determine the number of floating license seats that are in use. The floating license server log is not suitable for the purpose of usage analysis, because at high server loading or with certain types of license file configuration, you might get incomplete or misleading results.

The `lmutil lmstat` command can generate text output that indicates which user is using what version of a license component, and when the license was granted. By selecting the appropriate arguments, such as `-i` for information from the `FEATURE` or `INCREMENT` line for the specified feature, or `-a` for all information, you can collect snapshot information of your license usage. You can then run the output through a text parser if you want to analyze the data in more detail. Further information on the `lmutil lmstat` command can be found elsewhere. See the *Licensing End User Guide*.

Be aware that there is a trade-off between increased temporal resolution of your usage data and server loading, especially if you have a high turnover licensing environment. The `lmutil lmstat` command can consume a significant fraction of the CPU resource of your server, especially if the `-a` switch is used. At very high loadings, such as greater than 1000 checkouts per minute, the resulting data are known to be inaccurate because not all transactions can be recorded during the data collection period.

8.5 Server debug log reports “(armlmd) cannot open lock file” or “cannot communicate with lmgrd”

The lock file error most commonly occurs on a Unix/Linux system if a previous instance of the armlmd license daemon was not shut down properly. Only one copy of armlmd can run on your floating license server at any given time. Attempting to start another copy of this daemon causes an error.

When the ARM license daemon, armlmd, is started, it creates a file called /var/tmp/lockarmlmd. If lmgrd terminates abnormally, armlmd does not release the lock file because it might still be running. To solve this problem:

1. Locate any license daemon processes. You can do this using the following command on Unix/Linux:

```
ps -a | grep daemon_name
```


where *daemon_name* is lmgrd or armlmd.
2. Shut down lmgrd first.
3. Next terminate these processes with:

```
kill PID
```


where *PID* is the process ID for the license daemon.
4. Delete the /var/tmp/lockarmlmd if it still exists.
5. You can now restart the floating license server.

If you are using Windows, use the Windows Task Manager to locate the lmgrd or armlmd processes. Shut down lmgrd first. Select the process, then click **End Process**.

8.6 What version of the floating license server daemons must I use?

Floating license server software consists of two parts:

- the ARM floating license server vendor daemon `armld`
- the FlexNet floating license server daemon `lmgrd`.

You can upgrade to later versions of `lmgrd`, but are advised to use the version of `armld` provided with the latest ARM software you have installed. The latest floating license server utilities, including `lmgrd` and `armld`, can be obtained through ARM, from your tools installation media, download site, or from ARM License Support. For more information, see [Chapter 9 Setting Up a Floating License Server](#).

Older releases of the ARM license daemon are forwards compatible with later releases of `lmgrd`. For example, you can use `armld` version 9.2 together with `lmgrd` version 11.10. However it is best practice to use the latest ARM license utilities available.

Note

If your floating license server is running Solaris 5.6, you cannot use FLEXnet version 9.0 utilities. Instead you must use version 9.2 utilities or higher.

The newer utilities, including the `armld` vendor daemon, can be requested from ARM if you do not already have a product DVD-ROM or CD-ROM with this version of FlexNet.

The latest ARM license daemon version used by DS-5 is that shown in the directory `install_directory\sw\FLEXnet_version`.

8.7 How can I limit user access to particular licensed features?

As a floating license administrator, you can use an options file to:

- set aside specific features for named users
- set aside specific features for named client computers
- prevent certain users or computers from being issued with a license of a particular type.
This is particularly useful if you have a license that enables more than one version of the ARM tools and you want to control what users have access to what versions.

To use an options file, first you must write it, then configure your floating license server to use it.

8.7.1 How to create an options file

You can create an options file in any text editor. ARM recommends that your options file has an .opt extension. When complete, copy the options file to each of your ARM floating license servers.

A sample options file is shown in [Example 8-1](#) to demonstrate some of the key syntax. In this example, it is assumed that:

- there are two defined project groups with defined users, and a set of build computers.
- the administrator wants to limit the number of seats of a given feature on a group basis, and also wants to reserve ARM Compiler toolchain v5.0 compiler seats for particular users and clients.
- A specific user is not to be granted an ARM Compiler toolchain v5.0 compiler license.

The following permissions and restrictions are required:

- The build computers in the host_group buildbox must always have two compiler seats available, of no particular version.
- Users in group project_talisker, user1 to user5, must not be given more than three fromelf licenses of any version between them.
- Users in group project_macallan must always have one seat of compiler version 5.0 available.
- User7 cannot ever obtain a compiler license of version 5.0, despite being in group project_macallan.

[Example 8-1](#) contains the corresponding options file that satisfies the restrictions:

Example 8-1 Options file

```
# License Options File example by ARM Limited
# -----
# This example should be modified as required for your own licensing # environment.
# Turn off case sensitivity for group and hostnames
# (Only valid in FlexNet 10.x. In FLEXlm 9.x, you need to ensure that
# case of groups and hostnames is consistent, and comment out the following
# line.)
#GROUPCASEINSENSITIVE ON
# Groups are defined here
# --> use the form: GROUP group_name user_list
GROUP project_talisker user1 user 2 user 3 user4 user5
```

```

GROUP project_macallan user6 user7 user8
# Host Groups are defined here
# --> use the form: HOST_GROUP group_name host_list
HOST_GROUP buildbox buildpc01 buildpc02
# Define usage restrictions below
# --> use the form: OPTION feature[:keyword=value] type {name | group_name}
RESERVE 2 compiler
HOST_GROUP buildboxMAX 3 fromelf
GROUP project_taliskerRESERVE 1 compiler:version=5.0
GROUP project_macallanEXCLUDE compiler:version=5.0
USER user7

```

The syntax for the options are as follows:

- Some options, such as RESERVE, require that you specify the number of seats.
- The RESERVE option puts aside a defined number of seats. You can specify an exact version of the feature if required.
- The MAX option puts a limit on the number of seats of a given feature.
- The EXCLUDE option prevents a user or group from being granted a license. This overrides any settings to include the user.

Other options are available and are described elsewhere, as is the exact syntax to use for all options. See Chapter 5 of the *Licensing End User Guide*.

8.7.2 Configuring your floating license server to use the options file

To configure the floating license server:

1. You must edit your ARM tools license file so that the options file is called on the VENDOR or DAEMON line. For example, if your options file is called `arm1md.opt`, in your license file you must add `VENDOR arm1md option=arm1md.opt`.
2. If you have multiple servers, repeat the change for the license files on each of your ARM floating license servers.
3. Restart your floating license server or servers.
4. If your configuration is successful, the server log shows messages that the options file is being used and that your restrictions defined in the options file are being implemented.

8.7.3 See also

Reference

- [arm1mddiag utility on page 10-2](#).

8.8 Why am I getting “DENIED” messages in the server log?

DENIED is not necessarily an error message. It only indicates a real problem if there is a corresponding license failure reported on the client side. This real failure can occur if a client invokes a tool and it cannot find a valid license file for it, and the failure is reported back to the client.

You might be getting a DENIED message if there are no seats available and the request is queued. See [Do ARM licenses support queuing?](#) on page 6-8.

However, the message can also occur if you are using a merged license file with multiple versions of the tools. For instance, consider a floating license with both ARM Compiler toolchain v5.0 and ARM Compiler toolchain v4.1 components. If a user requests an ARM Compiler toolchain v5.0 compiler license and the floating license server locates the ARM Compiler toolchain v4.1 compiler license first, there is an immediate version mismatch and the request is denied and recorded in the server debug log. However, the server then continues to look through the available licenses and finds the ARM Compiler toolchain v5.0 license. The server then lets the user check out the license.

In the server debug log, a typical sequence of an initial license failure followed by a successful checkout looks like this:

```
6:35:09 (armlmd) DENIED: "compiler" user@mycomputer (License server does not support
this version of this feature (-25,334))6:35:09 (armlmd) OUT: "compiler"
user@mycomputer6:35:09 (armlmd) IN: "compiler" user@mycomputer
```

The initial DENIED is followed immediately by a successful checkout.

If you want to suppress such messages in the server log, you can use the command NOLOG DENIED in a server options file. Further information on options files can be found elsewhere. See the *Licensing End User Guide*.

8.9 How can I manage the size of the server debug log file?

If you are administering a floating license server that is heavily used, you might find that the floating license server debug log becomes unmanageably large after a relatively short time. Very large log files in excess of 1GB in size can cause the license utilities to fail. You can control the size of the server debug log file in the following ways:

- [Suppressing messages](#)
- [Restarting the floating license server](#)
- [Starting a new server debug log.](#)

8.9.1 Suppressing messages

You can stop the server debug log from recording certain message types by using the NOLOG directive in an options file. You can turn off logging of license checkouts (OUT), checkins (IN), and denied (DENIED) and queued (QUEUED) messages. If you normally suppress server debug log messages, it might be necessary for you to re-enable them to troubleshoot problems.

To turn off logging of checkins use:

```
NOLOG IN
```

To turn off logging of checkouts and queued requests two separate NOLOG lines are required:

```
NOLOG DENIED
NOLOG QUEUED
```

8.9.2 Restarting the floating license server

When you restart the floating license server, you start a new floating license server debug log file. Restarting the server can be useful if you suspect a memory leak or similar problem that only becomes noticeable after an extended period. The server shutdown and restart process normally takes a few seconds to complete. See [Chapter 9 Setting Up a Floating License Server](#).

8.9.3 Starting a new server debug log

You can create a new server debug log without restarting the floating license server by using the `lmswitch` command. Regularly creating new debug logs, for example on a weekly basis, can help you to maintain organized records of floating license server activity. You can use this command on the Windows or Unix/Linux command line. Change to the directory where your floating license server utilities are installed, then type the command:

```
lmutil lmswitch -c license_file_name armld new_logfile_name
```

where:

license_file_name

specifies the fully qualified path name of the license file being used

new_logfile_name

specifies the fully qualified path name of the new server debug log file.

Your original log file is closed with a message that the server debug log is being switched to *new_logfile_name*. The top of *new_logfile_name* tells you the name of the previous server debug log file.

Chapter 9

Setting Up a Floating License Server

The following topics describe the installation of FlexNet server software and the configuration of the client machines:

- [Installing the server software on page 9-2](#)
- [Installing a floating license on page 9-4](#)
- [Starting a floating license server on page 9-6](#)
- [Shutting down a floating license server on page 9-9.](#)

Note

If you use only node-locked licenses, you do not require FlexNet server software and you can safely ignore this chapter.

9.1 Installing the server software

Before any floating license can enable the use of your license-managed ARM product, you must install the FlexNet server software on your floating license server or servers and start the server running.

Note

If the computer is acting only as a license management server, installation of the ARM software product on the server is not required.

Each ARM product that supports floating licensing provides the software for all supported floating license servers.

The FlexNet files can typically be found in one of the following places:

- On the DVD-ROM or in the downloaded package. See the *Getting Started* document of your ARM product for details.
- In a folder of your product installation. For DS-5, the FlexNet files are located in:
`install_directory\sw\FLEXnet_version`
- On the website from which you downloaded your product.

If you cannot locate the ARM floating license server utilities, either:

- Download the file from the ARM support site. To do this:
 1. Browse to the ARM Self-Service Portal, <https://silver.arm.com/>
 2. Click **Downloads**.
 3. Either register for an ARM account, or log in if you already have an account.
 4. Click **Utilities**.
 5. Click **FLEXnet binaries and utilities**.
 6. Click **Download Now** to get the current version of the FlexNet software files. The download automatically starts.
 7. If the File Download dialog box is displayed, click **Save** to save the file to your local machine, and follow the on-screen prompts.
- Contact ARM License Support by email at:
`license.support@arm.com`

The license management utilities include:

<code>arm1md</code>	the ARM vendor daemon
<code>1mgrd</code>	the FlexNet server daemon
<code>1mutil</code>	the FlexNet licensing utilities
<code>1mttools.exe</code>	the graphical user interface for FlexNet licensing utilities.
	<code>1mttools</code> is only available on Windows.

All utilities have `.exe` filename extensions on Windows. However, these are not visible if you have chosen to hide extensions for known file types in Windows Explorer.

9.1.1 Installing server software on Windows

To install the server software on a Windows floating license server:

1. Copy the FlexNet files for your ARM application into a directory, for example C:\FlexNet, on the server.
2. Add the directory to the PATH.

If you are using a triple server arrangement then you must repeat these FlexNet server software installation steps for each Windows server.

9.1.2 Installing server software on Unix/Linux

The floating license server software is normally supported on platforms of the same version as supported by your ARM product. However there are some exceptions. See [What version of the floating license server daemons must I use? on page 8-7](#).

Alternatively the floating license server utilities are available on the website from where you downloaded your product. If you do not have access to the ARM floating license server utilities, contact ARM License Support.

On any Unix/Linux server, install the server software as follows:

1. Copy the files from the directory for your platform onto the server license machine. The destination directory must be on your PATH. Installing the floating license server software on remotely mounted disks is not recommended because of the additional network dependency.
2. On the floating license server machine, change to your license utilities directory, and type:
`sh ./makeLinks.sh`

If you are using a triple server arrangement, then you must repeat these FlexNet server software installation steps for each Unix/Linux server.

9.2 Installing a floating license

You normally retrieve your license yourself from the ARM web licensing portal. See [Manually obtaining a license from the ARM web licensing portal on page 3-4](#).

9.2.1 Prerequisites

If you are adding this license to a floating license server that is already used for licensing FlexNet managed tools, the same utilities must be used for all tools. You must therefore ensure that all of the floating license server utilities are upgraded to the latest version used by any of the various tools that you have.

Caution

You must not change anything already present in the license file other than the server name and port number, otherwise the license file becomes invalid.

9.2.2 Procedure

Before you can use your license file, you must modify it as follows:

1. Move the license file to a known location on the server. A suitable place for the license file is the same directory as your floating license server software.
The suggested file name is `license.dat`, and this name is used throughout this document to refer to the license file. If you want to call the file something else, substitute your file name for `license.dat`.
2. Open a text editor to modify your `license.dat` file.
3. Replace `this_host` in the license file with the corresponding server name.

Note

If the host ID in the license file is incorrect or if the server host ID has changed, you must apply to ARM for a new license file.

4. Add the port number after each host ID. By default, the port number is 8224. If you do not define a port, the operating system chooses one in the range from 27000 to 27009. This number might change if the server is rebooted.
5. Save your edited license file as a plain text file.

Note

If you make a mistake when editing your license file, you can download the original license file again from the ARM web licensing portal.

9.2.3 Example

For example, a web-generated license file might contain the following line:

```
SERVER this_host 001002A34BC5
```

If you want to use port number 8224 on your floating license server called `synchrotron`, you must change the line to:

```
SERVER synchrotron 001002A34BC5 8224
```

Although you cannot edit your license file except as permitted, you can add certain elements to your license file, such as paths to an options file or vendor daemon. See the *Licensing End User Guide* for details.

9.3 Starting a floating license server

How you start a floating license server depends on the platform you are using.

———— Note ————

If you are adding a new license to a system with a running floating license server, you must stop the server, point the server to the new license file, then restart the server. See [Shutting down a floating license server on page 9-9](#). If this is not done, the new license information might not be recognized by the license daemons. ARM does not recommend the use of the `lmreread` command.

9.3.1 Starting a Windows server from the graphical user interface

To configure and start the floating license server software on a Windows server using the graphical user interface:

1. Start the `lmtools.exe` program. See [Installing the server software on page 9-2](#).
2. On the **Server/License File** tab, select the **Configuration using Services** option, as shown in [Figure 9-1](#).

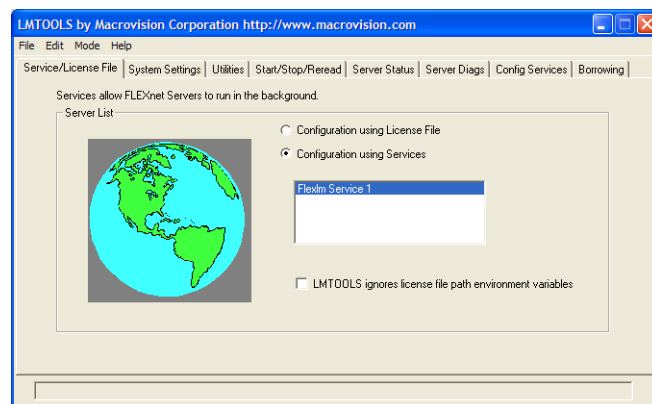


Figure 9-1 Selecting Configuration using Services

3. Click the **Config Services** tab to display the dialog shown in [Figure 9-2](#). This example shows the dialog with typical paths entered.

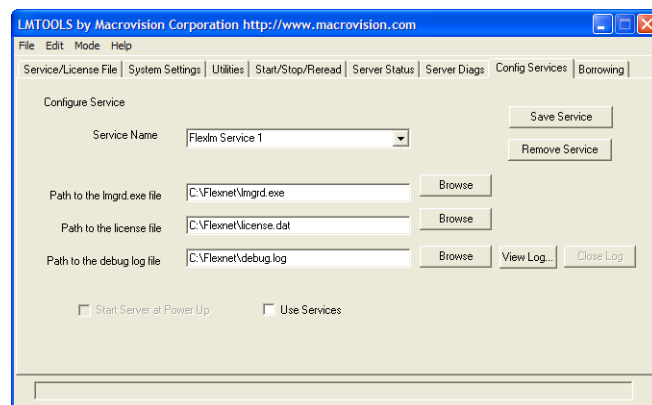


Figure 9-2 Server setup dialog

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 the following:
 - executable file `lmgrd.exe`
 - license file `license.dat`
 - log file, which is `debug.log` in this example.

———— **Note** ————

The server log file can become very large, so it might be necessary for you to control its size. See [How can I manage the size of the server debug log file?](#) on page 8-11.

5. If you require the server software to start running automatically when the server computer is turned on:
 - a. select the **Use Services** checkbox
 - b. select the **Start Server at Power Up** checkbox.
6. Click **Save Service**.
7. At the prompt, confirm saving the FlexNet License Manager service.
8. Click the **Start/Stop/Reread** tab, and ensure that the FlexNet License Manager service is selected.
9. Click **Start Server** to start running the floating license server software.
10. Check whether the floating license server started successfully:
 - a. click the **Server Status** tab
 - b. click **Perform Status Enquiry**
 - c. the status information shows that the floating license server and vendor daemon are both UP, followed by a licensed feature usage list. Any floating license server errors are shown in the status information.
11. After you have started the floating license server, you can use a text editor, such as Notepad, to inspect the server debug log file.

For more details on the server graphical user interface, see:

- the Flexera Software documentation
- the *Licensing End User Guide*.

9.3.2 Starting a Windows server from the command line

To start the floating license server on Windows using the command line:

1. Go to the directory where the floating license server software is installed.
2. Type:


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

 where:


```
license_file_name
```

 specifies the fully qualified path name of the license file

```
logfile_name
```

 specifies the fully qualified path name to a server debug log file.

Note

The server log file can become very large, so it might be necessary for you to control its size. See [How can I manage the size of the server debug log file? on page 8-11](#).

3. After you have started the floating license server, you can use a text editor, such as Notepad, to inspect the server debug log file.

9.3.3 Starting a Unix/Linux server

To start the floating license server software on a Unix/Linux server, go to the directory containing the floating license server software and type:

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

where:

license_file_name

Specifies the fully qualified path name of the license file.

logfile_name Specifies the fully qualified path name to a server debug log file. The debug log file must be on a local storage device to avoid network problems.

Note

The server log file can become very large, so it might be necessary for you to take action to control its size. See [How can I manage the size of the server debug log file? on page 8-11](#).

Note

lmgrd does not require root privileges, ARM recommends that you start the server as a non-privileged user, instead of giving it root privileges.

After you have started the floating license server, you can type, for example:

```
tail -f logfile_name
```

to see the most recent output from the floating license server.

For more details on how to start and configure a floating license server on Unix/Linux, see:

- the Flexera Software documentation
- the *Licensing End User Guide*.

9.4 Shutting down a floating license server

It might be necessary for you to shut down a floating license server to, for example, use a new license or to use a modified options file. How you stop a floating license server depends on the platform you are using.

Note

Avoid using the Windows Task Manager, or `kill -9` on Unix/Linux, to terminate the floating license server daemons because the processes might not end gracefully. This might cause problems on server restart. If you must forcibly shut down a server, always stop `lmgrd` before `arm1md`.

9.4.1 Stopping a Windows server

To use the graphical user interface to stop a Windows floating license server:

1. Start the `lmtools.exe` program. See [Installing server software on Windows on page 9-3](#).
2. Click the **Start/Stop/Reread** tab.
3. Click the **Stop Server** button to shut down the floating license server.
4. The server log, if you are using one, records that the server has been shut down.

To use the command line instead of the graphical user interface, see the instructions in [Stopping a Unix/Linux server](#).

9.4.2 Stopping a Unix/Linux server

To stop a Unix/Linux server, go to the directory containing the floating license server software. At the command prompt, type:

```
lmutil lmdown -q -c license_file_name
```

where:

license_file_name

Specifies the fully qualified path name of the license file that you used when you started the server.

Chapter 10

ARM License Manager Diagnostic Utility

The following topic describes the `armlmddiag` license manager diagnostic utility:

- [armlmddiag utility on page 10-2.](#)

10.1 armlmddiag utility

The ARM license manager diagnostic utility, `armlmddiag`, allows you to perform basic licensing operations and print useful debugging information that can help diagnose licensing problems. You can use `armlmddiag` to:

- Checkout a floating or a nodelocked license.
- Hold a license for a specified amount of time.
- View the license information after a successful checkout:
 - Expiry date.
 - Number of seats.
 - Version number.
 - Previous version number, if upgraded.

The utility is located at `install_directory/sw/FLEXnet_version/platform`, where:

version is the currently supported version of FlexNet.

platform is the name of the platform you are using to run the utility.

10.1.1 Syntax

```
armlmddiag --feature name --version N.n [option]
```

Where:

`--feature name, -f name`

Is the name of the feature.

`--version N.n, -v N.n`

Is the version number of the feature.

option Is any of the following:

`--location location, -L location`

Location of the license file, in the format `port@host` or path.

This option is not required if you set the `ARMLMD_LICENSE_FILE` environment variable.

`--count n, -c n`

Number of licenses to checkout.

`--delay seconds, -d seconds`

Number of seconds to delay the checkout.

`--help, -h`

Display the command help.

`--linger seconds, -l seconds`

The time in seconds that a license is to remain checked out.

`--queue, -q`

Wait until the license becomes available.

10.1.2 Examples

- Check out a license from the server located at `27008@localhost`:

```
$ armlmddiag --location 27008@localhost --feature f1 --version 1.0
```

[14:34:06] ... Checking out f1 (1 licenses).

[14:34:06] ... Checkout done.

Feature Information

```
Line Type:      INCREMENT
Feature:        f1
Version:        1.0
Expiry date:    permanent
Max number of users: 10
Issuer:         ARM Limited
Notice:         For support see http://www.arm.com/support/
Serial Number:  20987-98444-00000
```

[14:34:06] ... Exiting, all licenses will be checked in.

- Check out five licenses from the server located at 27008@localhost:

```
$ armlmddiag -L 27008@localhost -f f1 -v 1.0 --count 5
```

 ...
- Check out five licenses from the server located at 27008@localhost and hold them for one minute:

```
$ armlmddiag -L 27008@localhost -f f1 -v 1.0 -c 5 --delay 60
```

 ...
- Check out a license from the license file /home/user/license.dat:

```
$ armlmddiag -L /home/user/license.dat -f f1 -v 1.0
```

 ...
- Set the ARMLMD_LICENSE_FILE environment variable to specify the license location, instead of using --location:
 - On Linux:


```
$ export ARMLMD_LICENSE_FILE=27010@localhost
$ armlmddiag -f f1 -v 3.0
```

 ...
 - On Windows:


```
> set ARMLMD_LICENSE_FILE=27010@localhost
> armlmddiag -f f1 -v 3.0
```

 ...

10.1.3 See also

Concepts

- [Do ARM licenses support queuing? on page 6-8.](#)

Glossary

The items in this glossary are listed in alphabetical order.

Client	The computer on which you are running the ARM software tools. Also known as <i>Host</i> .
FLEX/m	<i>See</i> FlexNet.
FlexNet	The license management technology from Flexera Software, used for controlling the use of an ARM application. Previously known as <i>FLEXnet</i> , and before that, <i>FLEX/m</i> .
Host	In this manual, host means the computer on which you are running ARM applications or FlexNet. In other contexts the term can mean a computer that provides data and other services to another computer. Also referred to as <i>Client</i> .
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. <i>See also</i> FlexNet.
Options file	A plain text file that allows a floating license administrator to control user access to specific features or versions of licensed software. An options file can also be used for limiting the information written to the floating license server debug log.
Permanent license	A license that enables you to use an ARM application. <i>See also</i> 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.

Server	A computer that issues floating licenses to a <i>client</i> computer. ARM licenses can be used with either a single server, or triple (redundant) server arrangement.
Server debug log	A plain text file that is optionally created by a floating license server process. By default, the server debug log contains diagnostic and license usage information. The server debug log is separate to the FlexNet server report log.
Server log	<i>See</i> Server debug log.