

# ARM<sup>®</sup> Developer Suite

Version 1.2

## Installation and License Management Guide



# ARM Developer Suite

## Installation and License Management Guide

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### Release Information

The following changes have been made to this book.

#### Change History

Date	Issue	Change
November 2000	A	ADS Release 1.1
November 2001	B	ADS Release 1.2

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# Contents

## ARM Developer Suite Installation and License Management Guide

	<b>Preface</b>	
	About this book .....	vi
	Feedback .....	x
<b>Chapter 1</b>	<b>What to Install</b>	
	1.1 Supported platforms .....	1-2
	1.2 ADS CD-ROM contents .....	1-4
	1.3 Selecting your files .....	1-7
	1.4 Where the files are stored .....	1-9
	1.5 License management software .....	1-10
<b>Chapter 2</b>	<b>Installing ADS and Licenses</b>	
	2.1 ADS 1.2 with Windows .....	2-2
	2.2 ADS 1.2 with UNIX or Linux .....	2-6
	2.3 Obtaining a permanent license .....	2-11
	2.4 Where to go from here .....	2-16
<b>Chapter 3</b>	<b>License Management</b>	
	3.1 Types of license .....	3-2
	3.2 Possible configurations .....	3-4

	3.3	Information for experienced users .....	3-6
<b>Chapter 4</b>		<b>Server Software</b>	
	4.1	Installing server software on Windows servers .....	4-2
	4.2	Installing server software on UNIX or Linux servers .....	4-3
	4.3	Running server software .....	4-4
<b>Chapter 5</b>		<b>Utilities</b>	
	5.1	Utilities available .....	5-2
	5.2	Running utilities with Windows .....	5-6
	5.3	Running utilities with UNIX or Linux .....	5-8
	5.4	Further information about utilities .....	5-9
<b>Chapter 6</b>		<b>Troubleshooting</b>	
	6.1	Summary of requirements .....	6-2
	6.2	Problems and solutions .....	6-4
	6.3	FAQs and answers .....	6-9
	6.4	Further sources of information .....	6-10
		<b>Glossary</b>	

# Preface

This preface introduces the *ADS v1.2 Installation and License Management Guide*. It contains the following sections:

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

## About this book

This book provides a description of the software you must install on your computer, and includes detailed installation instructions. The book also introduces the *FLEXlm* license management system supplied by GLOBEtrouter, Inc., that controls the use of the *ARM Developer Suite* (ADS) applications software.

## Intended audience

On some sites a systems administrator will read this book. The administrator installs ADS wherever necessary, administers the licenses, and answers any questions that ADS users might ask. In these cases ADS users might read only the parts of this book that interest them.

In many cases, however, ADS users themselves install ADS. They obtain the required licenses, and seek solutions to any problems they might encounter. If you are one of these users, you must read this book carefully.

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

## Using this book

This book is organized into the following chapters:

### **Chapter 1** *What to Install*

Read this chapter for a description of all the software supplied on the ADS CD-ROM, the parts of it you require, and where it normally goes on your hard disk.

### **Chapter 2** *Installing ADS and Licenses*

Read this chapter for detailed instructions on the installation of ADS, creating a temporary license, and obtaining and installing a permanent license.

### **Chapter 3** *License Management*

Read this chapter for an explanation of the *FLEXlm* license management system that controls the use of the ADS software. This chapter also contains instructions for installing the parts of *FLEXlm* that are required by all ADS users.

### **Chapter 4** *Server Software*

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

**Chapter 5 Utilities**

Read this chapter for a description of the various utility programs available to you as part of the FLEXlm license management system.

**Chapter 6 Troubleshooting**

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

**Glossary** An alphabetically arranged glossary defines the special terms used.

**Typographical conventions**

The following typographical conventions are used in this book:

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

**Further reading**

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

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

See also the ARM Frequently Asked Questions list at <http://www.arm.com/DevSupp/Sales+Support/faq.html>

## ARM publications

Refer to the following books in the ADS document suite for information on other components of ADS 1.2:

- *Getting Started* (ARM DUI 0064)
- *CodeWarrior IDE Guide* (ARM DUI 0065)
- *AXD and armsd Debuggers Guide* (ARM DUI 0066)
- *ADS Assembler Guide* (ARM DUI 0068)
- *ADS Compilers and Libraries Guide* (ARM DUI 0067)
- *ADS Linker and Utilities Guide* (ARM DUI 0151)
- *ADS Debug Target Guide* (ARM DUI 0058)
- *ADS Developer Guide* (ARM DUI 0056).

The following additional documentation is provided with the ARM Developer Suite:

- *ARM Applications Library Programmer's Guide* (ARM DUI 0081). This is supplied both in DynaText format, and in PDF format in `install_directory\PDF\apps_lib.pdf`.
- *ARM Architecture Reference Manual* (ARM DDI 0100). This is supplied both in DynaText format, and in PDF format in `install_directory\PDF\DDI0100E_ARM_ARM.pdf`.
- *ARM ELF specification* (SWS ESPC 0003). This is supplied in PDF format in `install_directory\PDF\specs\ARMELF.pdf`.
- *TIS DWARF 2 specification*. This is supplied in PDF format in `install_directory\PDF\specs\TIS-DWARF2.pdf`.
- *ARM/Thumb® Procedure Call Standard (ATPCS) Specification (SWS ESPC 0002)*. This is supplied in PDF format in `install_directory\PDF\specs\ATPCS.pdf`.

The following documentation is provided separately with other ARM products:

- *ARM Trace Debug Tools User Guide* (ARM DUI 0118), supplied with ARM Trace Debug Tools.
- *Angel™ Debug Protocol*, supplied with AFS.
- *Angel Debug Protocol Messages*, supplied with AFS.

In addition, refer to the following documentation for specific information relating to ARM products:

- *ARM Reference Peripheral Specification* (ARM DDI 0062)
- the ARM datasheet or technical reference manual for your hardware device.

## Feedback

ARM Limited welcomes feedback on ADS installation, license management, and documentation.

### Feedback on ADS installation or license management

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

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

### Feedback on this book

If you have any problems with this book, please send email to [errata@arm.com](mailto:errata@arm.com) giving:

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

General suggestions for additions and improvements are also welcome.

# Chapter 1

## What to Install

This chapter gives a summary of all the software supplied on the *ARM Developer Suite* (ADS) version 1.2 installation CD-ROM. It explains which parts of it you require, and where it normally goes on your hard disk. It contains the following sections:

- *Supported platforms* on page 1-2
- *ADS CD-ROM contents* on page 1-4
- *Selecting your files* on page 1-7
- *Where the files are stored* on page 1-9
- *License management software* on page 1-10.

## 1.1 Supported platforms

This section lists the hardware requirements and software requirements that must be met to enable ADS 1.2 to run in the following environments:

- *Microsoft Windows*
- *SunSPARC workstation*
- *HP workstation* on page 1-3
- *Linux* on page 1-3.

ADS license management of floating licenses requires TCP/IP software to be installed, configured, and running on every relevant computer.

### 1.1.1 Microsoft Windows

ADS 1.2 runs in a Windows environment that meets or exceeds the following hardware and software requirements:

- Pentium IBM-compatible PC
- 32MB RAM
- 75MB of disk space (for a Compact install)
- CD-ROM drive (this can be a networked CD-ROM drive)
- the operating system must be one of the following:
  - Windows NT, version 4
  - Windows ME
  - Windows 2000
  - Windows 98
  - Windows 95.

To view the PDF versions of the online manuals you must have Adobe Acrobat Reader installed. Acrobat Reader is provided with ADS 1.2. The online manuals are also viewable in DynaText. (The DynaText viewer is installed during ADS installation.)

### 1.1.2 SunSPARC workstation

ADS 1.2 runs in a UNIX environment on a SunSPARC workstation that meets or exceeds the following hardware and software requirements:

- Sun SPARC compatible machine
- 87MB of disk space (for a Compact install)
- CD-ROM drive (this can be a networked CD-ROM drive)
- CDE environment is required for correct operation of AXD
- AXD is optimized for operation on UltraSPARC machines

- the operating system must be one of:
  - Solaris 2.6
  - Solaris 7
  - Solaris 8.

### 1.1.3 HP workstation

ADS 1.2 runs in a UNIX environment on an HP workstation that meets or exceeds the following hardware and software requirements:

- HP series 9000 model 7xx
- 87MB of disk space (for a Compact install)
- CD-ROM drive (this can be a networked CD-ROM drive)
- the operating system must be HP-UX 10.20 or later.

### 1.1.4 Linux

ADS 1.2 runs in a Linux environment under either Linux RedHat 6.2 or Linux RedHat 7.1.

## 1.2 ADS CD-ROM contents

Two ADS CD-ROMs are available

- one for installation with Windows
- one for installation with UNIX or Linux.

Every computer on which ADS is to run has to have ADS installed, and you must be sure to use the correct CD-ROM for each computer.

The majority of the files required for the installation of ADS are in the root directory of the CD-ROM, and additional files are stored in other directories.

### 1.2.1 Directory structure of the Windows CD-ROM

The CD-ROM conforms to Microsoft Joliet format, and contains all the files required to install ADS 1.2 onto a PC workstation. It contains the following directories and files:

#### Windows installation program

setup.exe	Installs all or part of the product from the CD-ROM and sets up the user environment for it.
-----------	--

#### Windows installation files

\	The compressed data file in the root directory contains PC hosting of tools for Windows NT, Windows 95, Windows 98, Windows ME, and Windows 2000.
---	---

\demo	Contains software for the interactive demonstration of ADS.
-------	---

#### Documentation directory

\PDF	Contains the ADS 1.2 documentation in Adobe PDF format.
------	---

\HTML	Contains the Rogue Wave C++ library documentation in HTML format.
-------	---

#### License management

\flexlm	Contains license management tools.
---------	------------------------------------

\licenses	Contains license package file.
-----------	--------------------------------

license.txt	Is the text of the ADS license agreement.
-------------	---

license_request_form.txt	Is a form to use for requesting a permanent license.
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#### Application sources

\apps_lib	Contains library source code for specialized math routines and <i>Digital Signal Processing</i> (DSP).
-----------	--

\Examples	Contains source code for example projects.
-----------	--

## 1.2.2 Directory structure of the UNIX or Linux CD-ROM

The CD-ROM contains all the files required to install ADS 1.2 onto a UNIX or Linux workstation. The CD-ROM conforms to ISO9660 Level 1 standard. It contains the following directories and files:

### Installation scripts

install.sh	Installs all or part of the product from the CD.
usrsetup.sh	Sets up the environment variables after installation. There are also three support files for this script: <ul style="list-style-type: none"> <li>• env.ads.xxx.csh</li> <li>• env.ads.xxx.sh</li> <li>• qdsptype.csh</li> </ul>
setports.sh	Sets permissions on the ports to enable remote debugging.
armdtins.csh	Installs DynaText documentation browser (called by install.sh).

### Common files for UNIX or Linux

common	Contains the common files required for all UNIX or Linux installations:
bin.tar	The binary code.
armfpa.tar	The ARM <i>Floating Point Arithmetic</i> (FPA) support code.
examples.tar	Example programs that demonstrate how to write code for the ARM family of processors.
html.tar	Documentation for the Rogue Wave C++ libraries.
include.tar	C and C++ header files for the C and C++ libraries.
lib.tar	Linkable C and C++ libraries.
onlinbks.tar	ADS documentation as online books, to be read by DynaText browser.
pdf.tar	ADS documentation as PDF files, to be read by Adobe Acrobat reader.
dttext41.tar	Contains the DynaText documentation browser.
apps_lib	Contains the ARM Applications Library source code.

### Host-specific files for UNIX or Linux

hpux	Contains the PA-RISC HP-UX 10.20 hosting, including:
acoread.tar	Adobe Acrobat Reader version 4.0.
bin.tar	ADS executables.
Source.tar	Rebuild kit for ARMulator™ for use with the ADU graphical debugger.
windu.tar	Runtime support files used by the <i>Graphical User Interface</i> (GUI) tools in ADS.
solaris	Contains the Sun Solaris hosting. The file names are the same as for HP-UX.
linux	Contains the Redhat Linux hosting. The file names are the same as for HP-UX.

### License management

/licenses	Contains license management files.
/flexlm	Contains license management tools for all supported ARM platforms.
license.txt	Is the text of the ADS license agreement.
licreq.txt	Is a form to use for requesting a permanent license.

## 1.3 Selecting your files

During the installation process described in *ADS 1.2 with Windows* on page 2-2 and *ADS 1.2 with UNIX or Linux* on page 2-6 you can choose which groups of files to install.

You are prompted to choose one of the following types of installation:

- Compact**     A minimal working toolkit, without any documentation or source code.
- Custom**     Your own selection of component files.
- Full**        Every available component.
- Typical**     The standard ADS product, with online documentation and examples.

The ADS files included in each type of installation are shown in Table 1-1.

**Table 1-1 ADS files installed**

ADS components and their files	Compact	Custom	Full	Typical
Program files (approximately 55MB)	Yes	–	Yes	Yes
• Executables	–	Optional	–	–
• C libraries, big-endian	–	1	–	–
• C libraries, little-endian	–	Optional	–	–
• C++ libraries, big-endian	–	1	–	–
• C++ libraries, little-endian	–	Optional	–	–
• Include files	–	1	–	–
• Help files	–	Optional	–	–
		1		
		Optional		
		1		
		Optional		
		1		
Example files (approximately 5MB)	No	Optional	Yes	Yes
		1		
Online documentation (approximately 80MB)	No	–	Yes	Yes
• HTML documents	–	Optional	–	–
• DynaText documents	–	1	–	–
• PDF-only documents	–	Optional	–	–
		1		
		Optional		
		1		

Table 1-1 ADS files installed (continued)

ADS components and their files	Compact	Custom	Full	Typical
Rebuild kits (approximately 1MB)	No	–	Yes	No
• ARMulator extension kit	–	Optional	–	–
• ARM FPA sources	–	Optional	–	–
Applications library (approximately 10MB)	No	–	Yes	No
• Source	–	Optional	–	–
• Documentation	–	Optional	–	–
Documents, PDF <sup>a</sup> (approximately 45MB)	No	Optional	Yes	No

a. These are PDF versions of the documents that are also supplied as DynaText files.

If you install some groups of files that you later find you do not want, you can rerun the installer to delete the unwanted groups of files.

If you start with less than a full installation, you can rerun the installer to add any missing groups of files.

To add or delete groups of files in a Windows environment, see:

- *Uninstalling ADS 1.2 with Windows* on page 2-3
- *Reinstalling ADS 1.2 with Windows* on page 2-4.

To add or delete groups of files in a UNIX or Linux environment, see:

- *Uninstalling ADS 1.2 with UNIX or Linux* on page 2-10
- *Reinstalling ADS 1.2 with UNIX or Linux* on page 2-10.

## 1.4 Where the files are stored

During the installation process you are shown the name of the installation directory that is created by default on the hard disk of your computer. This installation directory contains a number of subdirectories.

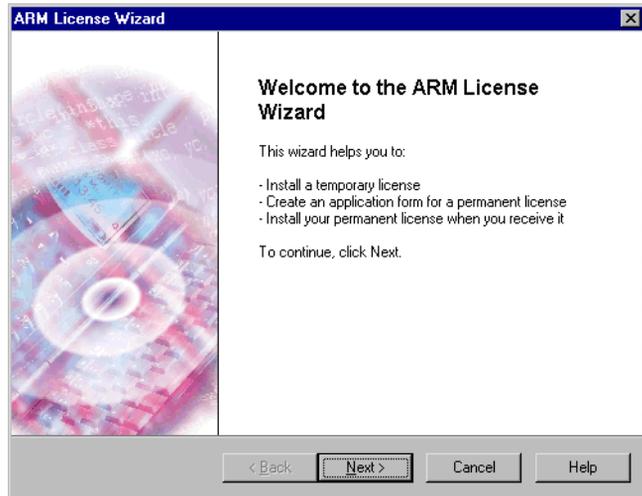
You can specify a different installation directory if the default directory name or path is unsuitable.

The ADS 1.2 installation directory and its subdirectories contain most of the necessary files, but as usual the installation process places additional entries in a few other existing or new system files.

## 1.5 License management software

ADS 1.2 is license-managed using FLEXlm license management software. The ADS installation procedure prompts you to enter the license management number printed on a label on the ADS box. If you do this correctly, the procedure creates a temporary license file, allowing you to use ADS for a limited period during which you can obtain a permanent license file from ARM Limited.

If you install ADS 1.2 in a Windows environment the ARM License Wizard is displayed towards the end of the installation, as shown in see Figure 1-1.

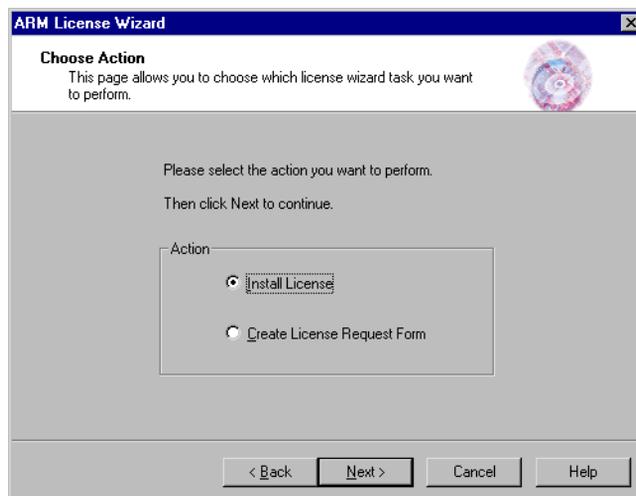


**Figure 1-1 ARM License Wizard**

The ARM License Wizard helps you to:

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

Click the Next button to display the screen shown in Figure 1-2 on page 1-11.



**Figure 1-2 Second screen of ARM License Wizard**

You can run the ARM License Wizard to help with your ADS license management at any time after you have installed ADS 1.2 by selecting **Start** → **Programs** → **ARM Developer Suite v1.2** → **ARM License Wizard**.

The ARM License Wizard is not available if you install ADS 1.2 in a UNIX or Linux environment. For details of license management under UNIX or Linux, refer to *ADS 1.2 with UNIX or Linux* on page 2-6.



## Chapter 2

# Installing ADS and Licenses

This chapter gives detailed instructions for the installation of ADS. It also explains how to create a temporary license, how to obtain a full license, and how to uninstall and reinstall ADS. It contains the following sections:

- *ADS 1.2 with Windows* on page 2-2
- *ADS 1.2 with UNIX or Linux* on page 2-6
- *Obtaining a permanent license* on page 2-11
- *Where to go from here* on page 2-16.

## 2.1 ADS 1.2 with Windows

This section describes:

- *Installing ADS 1.2 with Windows*
- *Uninstalling ADS 1.2 with Windows* on page 2-3
- *Reinstalling ADS 1.2 with Windows* on page 2-4.

### 2.1.1 Installing ADS 1.2 with Windows

You are strongly advised to remove any previous versions of ADS before installing this version. In addition, we recommend that you remove any previous versions of the ARM *Software Development Toolkit* (SDT).

To install ADS 1.2 with Windows:

1. Insert the CD into the CD-ROM drive. The autorun demonstration program starts. (If the autorun demo does not start, execute the `setup.exe` program in the top-level directory of the CD-ROM.)
2. Click the **Install** button in the demo.
3. If you have an earlier version of ADS on your PC, a dialog reminds you of this and waits for you to decide what to do. Click the **Yes** button to continue.
4. When the Welcome window is displayed, click **Next**. The license agreement window is displayed. To continue the installation process, you must accept the terms of the license agreement. Installation of ADS 1.2 means that you accept the terms of the ARM License Agreement.
5. Click **Yes** to install the software.  
If you do not want to accept the terms of the ARM license click **No**. If you do not want to accept the terms of the ARM License you must not use ADS 1.2 and you must return the software to the point of supply for a refund. If you accept the license agreement, the installer asks you to select a destination directory for your installation. If you want to accept the default destination, click **Next**. If you do not want to accept the default destination, click the **Browse** button to select the directory where you want the ARM Developer Suite to be installed.
6. The Windows installer prompts you to select an installation type (see *Selecting your files* on page 1-7). If you select Custom as the type, it offers a choice of product components to install. If you select more components than you have room for on your disk, an error message is displayed. A series of dialogs are displayed giving you a choice for the program folder, and CodeWarrior IDE file associations. Accept the defaults or enter a new value. The installer displays the list of the settings chosen for this installation.

7. Click **Next** to start the installation, or click **Back** to change your settings. After the software is copied to your disk, the ARM License Wizard is displayed.
8. Use the ARM License Wizard to install a temporary license (see *Types of license* on page 3-2 for more information about license-managed software). Select the Install License option on the second screen.

Enter the temporary license number, given on a label on the ADS box, in the form arm\md-ads-xxxxx-xxxxx-xxxxx-xxxxx-xxxxx-xxxxx-xxxx, where each x represents a numeric digit. Do not add any extra spaces, and remember to include the minus (-) characters. Leave the License File to be Installed field blank.

Click the **Next** button.

You are asked if you wish to update your license.

Click the **Next** button.

Click the **Finish** button.

9. The Windows installer automatically registers the OCXs that are required for the CodeWarrior IDE and AXD, and that completes the installation of ADS.

As part of the registration of the OCX drivers, a new version of file comct132.dll is installed if required. If the installer does this, you must reboot your workstation and the installer offers a reboot option at the end of installation.

If you have to register the OCX drivers again (after moving them, for example), you can do so by running the batch file register.bat from the \bin subdirectory of the ADS installation directory. See also *Initialization failure* on page 6-7.

10. The temporary licence lasts for a maximum of 45 days. The final important step is to apply for a permanent license (see *Obtaining a permanent license* on page 2-11) to continue using ADS after the temporary license expires.

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#### Note

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Important additional information about this release is available in the readme.txt file in the ADS 1.2 installation directory.

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## 2.1.2 Uninstalling ADS 1.2 with Windows

Before you uninstall ADS 1.2 you must ensure that no component of it is running. Check your toolbar for any ADS program that might be running minimized and close it. You can then uninstall ADS 1.2 in either of the following ways:

- select **Start** → **Settings** → **Control Panel** → **Add/Remove Programs** → **ARM Developer Suite**
- run setup.exe from the top-level directory of the installation CD-ROM and select the **Remove** option on the first screen.

If extra components were added by re-running the installer, they are also uninstalled. If you added extra files to the installation yourself (for example, by compiling the example programs) these are not uninstalled, but you can remove them manually.

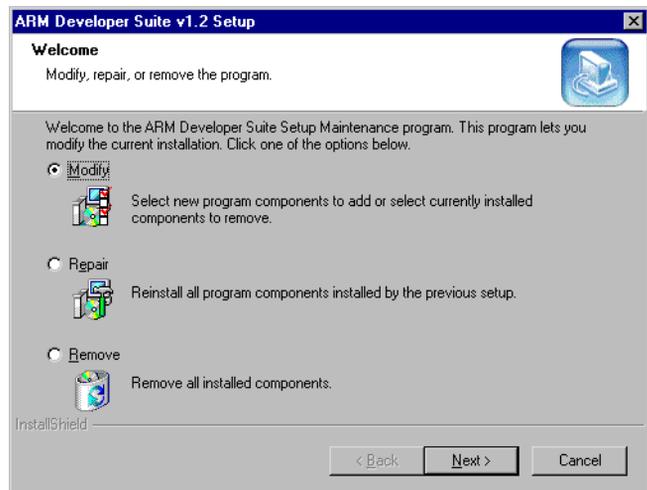
———— **Note** —————

Uninstalling ADS does not remove the ADS binary directory from your PATH. You might want to reset your PATH manually.

During installation of ADS on a Win9x platform the autoexec.bat file is updated to set environment variables and to lengthen your PATH. Upon uninstall these variables and paths are left in place. Eventually, after a number of installs, the autoexec.bat gets very large and on system boot the PC runs out of environment space, so can no longer register environment variables. To avoid this problem, you must manually edit your autoexec.bat file after uninstalling ADS from a Windows 9x computer, to remove the ADS-related commands.

### 2.1.3 Reinstalling ADS 1.2 with Windows

You can use the Windows installer to reinstall ADS 1.2, or add extra components to, or delete components from an existing installation. To display the Windows installer (see Figure 2-1), run setup.exe in the top-level directory of the installation CD-ROM.



**Figure 2-1 Addition of components dialog**

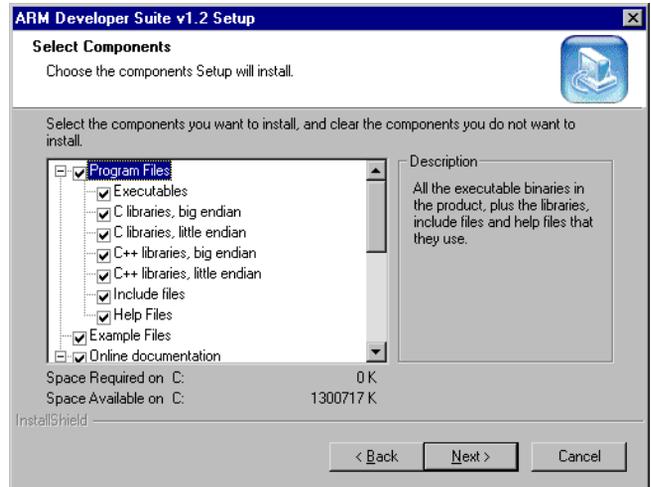
Select one of the three options as follows:

- To add or delete components, select **Modify**.

- To reinstall the components that are already installed, select **Repair**.
- To uninstall ADS, select **Remove**.

When you have made your selection, click the **Next** button.

If you are modifying an existing installation, the dialog shown in Figure 2-2 enables you to select the components to delete or install.



**Figure 2-2 Select Components dialog**

Specify the components you want to install or delete as follows:

1. Check the checkboxes of the components you want. These will be installed if they are not already present.
2. Clear the checkboxes of the components you do not want. These will not be installed, and will be deleted if they already exist.
3. When all the checkboxes are set as required, click the **Next** button.

## 2.2 ADS 1.2 with UNIX or Linux

This section describes:

- *Installing ADS 1.2 with UNIX or Linux*
- *User setup and OCX registration on page 2-8*
- *Installing the software license with UNIX or Linux on page 2-9*
- *Uninstalling ADS 1.2 with UNIX or Linux on page 2-10*
- *Reinstalling ADS 1.2 with UNIX or Linux on page 2-10.*

### 2.2.1 Installing ADS 1.2 with UNIX or Linux

You must remove any previous versions of ADS before installing this version. In addition, we recommend that you remove any previous versions of the *ARM Software Development Toolkit (SDT)*.

By installing ADS 1.2 you are accepting the terms of the ARM License Agreement.

If you do not want to accept the terms of the ARM License Agreement you must not install or use ADS 1.2 and you must return the software to the point of supply for a refund.

To install ADS 1.2:

1. Insert the CD into the CD-ROM drive.
2. Become superuser:
  - a. Type `su` at the shell prompt.
  - b. Enter the root password for your machine:  
Password: *root\_password*
3. Mount the CD by typing the appropriate one of the following commands:
  - on a Sun computer, type:  
`volcheck`
  - on an HP computer, type:  
`mount -r -F cdfs -o cdcase cdrom-device /cdrom`  
For example:  
`mount -r -F cdfs -o cdcase /dev/dsk/c1t2d0 /cdrom`
  - on a Linux computer, typically:  
`mount /mnt/cdrom`
4. Exit superuser mode by typing:  
`exit`

5. Move to the top-level CD-ROM directory:  
`cd /cdrom/ads12`
6. Run the install script:  
`sh install.sh`  
and follow the install script prompts to install ADS.
7. You are then informed of the requirement to run the `usrsetup.sh` script file to set up the environment variables used by ADS and to register OCX controls (see *User setup and OCX registration* on page 2-8).  
Your response depends upon your situation, as follows:
  - If you are acting as a systems administrator, installing ADS for others to use but not wanting to run it yourself, you do not have to set up environment variables or register OCX controls. You might, however, remind ADS users they must set up environment variables and register OCX controls before they can use ADS.
  - If you are installing ADS on a server on a network of computers and intend to use it yourself from a workstation on the network, you do not have to set up environment variables or register OCX controls now, on the server, but you must do so later, at the workstation.
  - If you are installing ADS on a computer and intend to run it yourself on the same computer, then you must set up environment variables and register OCX controls. You can do this now or later, but you will not be able to use ADS until it is done.
8. Install a temporary license (see *Installing the software license with UNIX or Linux* on page 2-9) to allow immediate use of ADS 1.2.
9. Apply for a permanent license (see *Obtaining a permanent license* on page 2-11) to continue using ADS 1.2 after the temporary license expires.

———— **Note** —————

Important additional information about this release is contained in a `readme.txt` file in your ADS installation directory.

---

## 2.2.2 User setup and OCX registration

After ADS is installed, you, as an ADS user, must set up your own environment variables and register certain OCX controls. Every user must do the following before using ADS:

1. At the computer on which ADS is installed, or at any other UNIX or Linux computer on the same network, make your current directory the ADS installation directory.
2. Run the `usrsetup.sh` script file.

The environment variables that allow you to use ADS are now set up. How you save them for future use depends on the kind of UNIX or Linux shell you use, and on whether you want to set up your environment immediately or next time you log on.

If you are a SH or KSH (Bourne shell or K shell) user, issue the command:

```
. $HOME/.profile
```

Alternatively, if you have created a separate `ads.profile` file, issue the command:

```
. $HOME/ads.profile
```

If you are a CSH or TCSH (C shell or T shell) user, source your `.cshrc` file with the command:

```
source $HOME/.cshrc
```

Alternatively, if you have created a separate `ads.cshrc` file, source your `.cshrc` file with the command:

```
source $HOME/ads.cshrc
```

You are required to set these environment variables only once. When you do, you are asked whether you want to register certain OCX controls. You must register these OCX controls before you can use ADS. The registration process consists of running a script held in a file called `register.sh` and this happens automatically when you confirm you want it run.

You might also have to run the `register.sh` script file a further number of times. If you want to run ADS from any one of a number of UNIX or Linux workstations, you must run the `register.sh` script file at each workstation before you can run ADS there.

To run `register.sh` successfully, the `DISPLAY` environment variable must be set up correctly.

### 2.2.3 Installing the software license with UNIX or Linux

ADS 1.2 is license-managed using FLEXlm license management software. The following procedure creates a temporary license file that allows you to use ADS for a limited period during which you can obtain a permanent license from ARM Limited.

#### Installing a temporary license

ADS finds the license file from the contents of the environment variable ARMHOME. Ensure that ARMHOME points to the full pathname of the top-level directory where you installed ADS 1.2 (the `usrsetup.sh` script sets this variable). This directory contains a subdirectory called `licenses`.

To install a temporary license:

1. Install ADS on the client machine.
2. Change directory to the `$ARMHOME/licenses` directory.
3. Execute the `lmutil` program:
 

```
lmutil lminstall
```

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

Your temporary license is printed on a label that is stuck to the box containing the ARM Developer Suite software. The label contains a license number of the form:

```
armlmd-ads-xxxxx-xxxxx-xxxxx-xxxxx-xxxxx-xxxxx-xxxxx
```

where each `x` represents a number. Type the temporary license number into the entry field, exactly as it appears on the box. Do not add any extra spaces, and include the minus (-) characters.
6. Press the Return key. If the license code is valid, the message Good is displayed.
7. Press the Return key twice. The data has now been converted into a readable partial license and saved to disk.
8. Enter the command:
 

```
cat package.dat 20010901.lic > license.dat
```

where `20010901.lic` is the name of the file you created in Step 4. This creates your complete temporary license.

### **Permanent license**

The temporary license lasts for a maximum of 45 days. To replace your temporary license with a permanent license, follow the instructions in *Obtaining a permanent license* on page 2-11.

#### **2.2.4 Uninstalling ADS 1.2 with UNIX or Linux**

To uninstall ADS 1.2 from a UNIX or Linux computer, delete the ADS installation directory and all subdirectories below it.

#### **2.2.5 Reinstalling ADS 1.2 with UNIX or Linux**

To reinstall ADS 1.2 on a UNIX or Linux computer, rerun the installation procedure as described in *Installing ADS 1.2 with UNIX or Linux* on page 2-6.

## 2.3 Obtaining a permanent license

To use ADS 1.2 without interruption you must obtain and install a permanent license before the temporary license expires.

There are two types of permanent license:

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

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

To apply for a floating license, you must also know whether your license management is to be controlled by one or by three servers. For further information, see *Possible configurations* on page 3-4.

Users of Windows workstations apply for a permanent license in a slightly different way from users of UNIX or Linux workstations. To apply for a permanent license, read either *Windows users* or *UNIX and Linux users* on page 2-12, as appropriate.

*Information required* on page 2-12 describes how to find some of the information you require when applying for a permanent license.

*Installing a node-locked permanent license file* on page 2-14 describes what you do when your permanent license file is ready to be installed and used.

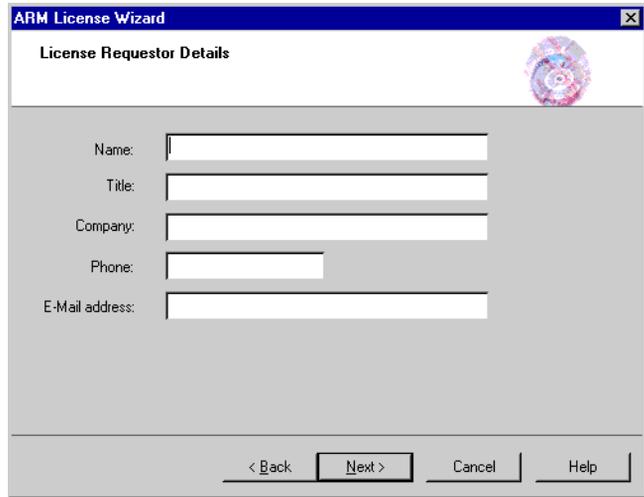
### 2.3.1 Windows users

You can apply for a node-locked license or a floating license. If you are not sure which you want, read *Types of license* on page 3-2.

You apply for a permanent license in one of two ways:

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

To create a license application form with the ARM License Wizard, go to the second screen (see Figure 1-2 on page 1-11), select Create License Request Form and click the Next button. The dialog shown in Figure 2-3 on page 2-12 is the first of three screens that prompt you to enter the required details.



The image shows a screenshot of a Windows dialog box titled "ARM License Wizard". The dialog box has a blue title bar and a white background. The main title is "License Requestor Details". There is a small circular logo in the top right corner. Below the title, there are five text input fields, each with a label to its left: "Name:", "Title:", "Company:", "Phone:", and "E-Mail address:". At the bottom of the dialog box, there are four buttons: "< Back", "Next >", "Cancel", and "Help".

**Figure 2-3** Creating an application form for a node-locked permanent license

*Information required* describes the information you must have when you fill in the form, and how to find it. The ARM email address is given in the form.

### 2.3.2 UNIX and Linux users

Contact your systems administrator to obtain a permanent license. The administrator must fill in the license application form `license_request_form.txt` in the ADS installation directory, then email the file to ARM Limited. A permanent license will be returned. The administrator must install the permanent license on the license server (or the three license servers) and on each workstation that has ADS installed.

The information required by the systems administrator, and where to find it, are described in *Information required*.

### 2.3.3 Information required

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

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

The information asked for on the application form for a permanent license is as follows:

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

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

**Telephone/E-mail address**

Your company address, including ZIP/postcode and country.

**Serial number, product name and version**

This information is printed on the ADS box. Do not confuse the ADS serial number with the temporary license key number which begins with arm1md-ads- and also appears on the box.

**Type of License**

Select either Node Locked or Floating License.

**Hostid for a node-locked license**

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

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

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

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

To find the hostid of a computer, see *Hostid* on page 6-4.

**Hostname and hostid for floating licenses with a single server**

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

To find the hostname of a computer, see *Hostname* on page 6-4. To find the hostid of a computer, see *Hostid* on page 6-4.

**Hostnames and hostids for floating licenses with a redundant server set**

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

To find the hostname of a computer, see *Hostname* on page 6-4. To find the hostid of a computer, see *Hostid* on page 6-4.

**License Request Filename**

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

### 2.3.4 Installing a node-locked permanent license file

If you requested a node-locked permanent license, you use the permanent license file received from ARM Limited to install a license file called `license.dat` in the `licenses` subdirectory of the ADS installation directory. The ARM License Wizard can do this, as follows:

1. Select **Start** → **Programs** → **ARM Developer Suite v1.2** → **ARM License Wizard**.
2. Click the **Next** button.
3. Ensure that **Install License** is selected and click the **Next** button.
4. Use the **Browse** button to locate and select the permanent license file you have received, and click the **Next** button.
5. Select the `...ADsv1_2\licenses\license.dat` entry from the License File List (where `...ADsv1_2` is your ADS installation directory), and click the **Next** button.
6. Click the **Finish** button.

You can now use your license-managed ADS tools permanently.

### 2.3.5 Installing a floating permanent license

You must install a permanent floating license file on each ADS workstation and on each license server.

You usually use the permanent license file you received from ARM Limited to install a license file called `license.dat` in the `licenses` subdirectory of the ADS installation directory of an ADS workstation.

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

In exceptional circumstances, the license file can have another name, and can be stored in another place on a workstation. If so, its path and name must be defined in environment variable `ARMLMD_LICENSE_FILE` (see also *License apparently missing* on page 6-6).

## Windows workstation

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

1. Select **Start** → **Programs** → **ARM Developer Suite v1.2** → **ARM License Wizard**.
2. Click the **Next** button.
3. Ensure that **Install License** is selected and click the **Next** button.
4. Use the **Browse** button to locate and select the permanent license file you have received, and click the **Next** button.
5. Select the `...ADSv1_2\licenses\license.dat` entry from the License File List (where `...ADSv1_2` is your ADS installation directory), and click the **Next** button.
6. Click the **Finish** button.

## UNIX or Linux workstation

If you are running ADS on a UNIX or Linux workstation, you must perform the installation manually, as follows:

1. Save the contents of the license file you received in a file called `license.dat` in the `licenses` subdirectory of the ADS Installation directory.

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

## License management server

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

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

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

## 2.4 Where to go from here

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

Read the *Getting Started* manual for a description of the components that make up ADS, and the documentation.

If you are upgrading from SDT 2.50/2.51 or ADS 1.0/1.0.1/1.1, you are strongly recommended to read the *Differences* chapter in the *Getting Started* manual for a list of changes and incompatibilities between the various releases.

If you want to migrate an existing SDT project to ADS, read chapter 4 of the *Getting Started* for information on how to modify your build options, and for solutions to commonly encountered problems.

If you are new to ADS, read chapter 3 of the *Getting Started* for a quick introduction to the ADS toolchain.

# Chapter 3

## License Management

This chapter explains how the use of ADS is controlled by FLEX $lm$  license management software, and gives instructions for installing the parts of FLEX $lm$  that are required by all ADS users. It contains the following sections:

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

## 3.1 Types of license

Every installation of ADS must have access to a valid license file containing one of three types of license.

The three types of license, usually stored in the file `license.dat`, are:

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

### 3.1.1 Temporary license

Installation of ADS includes the option to create a temporary license. A temporary license is valid for a strictly limited period which cannot exceed 45 days.

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

### 3.1.2 Node-locked license

A node-locked license permits one specific computer to use ADS. A node-locked license is sufficient if ADS is required to run on one specific computer only.

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

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

#### **Node-locking to PC network cards**

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

##### **Windows NT/2000**

One of the following must be installed:

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

##### **Windows 95/98/ME**

One of the following must be installed:

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

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

### **3.1.3 Floating license**

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

## 3.2 Possible configurations

You can install ADS on any number of computers, in the following ways:

### Node-locked

Each computer with ADS installed has its own unique license file, valid only for the network address or hard disk serial number of that computer. Node-locked licenses are available for Windows computers only.

### Floating, with single server

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

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

If the server fails, no computer can run ADS.

### Floating, with three servers

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

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

License management servers and ADS workstations can run under any mixture of Windows, UNIX, or Linux operating systems, with only the following exception:

———— **Note** —————

Running a license management server under Windows 95 or 98 is not supported.

*FLEXlm* server software is required on one or three computers on a network only if the computers that run ADS do so with floating licenses.

The example shown in Example 3-1 on page 3-5 shows a typical node-locked license. This license allows the use of the specified ADS tools on a single specific computer identified by the *hostid* value of 80ff12fe.

**Example 3-1 Typical node-locked license**


---

```

INCREMENT armasm arlmd 1.2 permanent uncouted 8C7A2E4645ABA898ADE8 \
    HOSTID=80ff12fe ISSUER="ARM Limited"
INCREMENT compiler arlmd 1.2 permanent uncouted \
    4CAEBE16C038EF8B7A6D HOSTID=80ff12fe ISSUER="ARM Limited"
INCREMENT armulate arlmd 1.2 permanent uncouted \
    0CAADE76FE86A5DB4C0E HOSTID=80ff12fe ISSUER="ARM Limited"
INCREMENT axd arlmd 1.2 permanent uncouted 2CEA6E06A31B21E99CE4 \
    HOSTID=80ff12fe ISSUER="ARM Limited"
INCREMENT fromelf arlmd 1.2 permanent uncouted 2C8A2E06D45D8CA81BEC \
    HOSTID=80ff12fe ISSUER="ARM Limited"
INCREMENT armlink arlmd 1.2 permanent uncouted 6C2A9E268A71C496A9C2 \
    HOSTID=80ff12fe ISSUER="ARM Limited"
INCREMENT codewarrior arlmd 1.2 permanent uncouted \
    9C0A0EE60D4651C673D0 HOSTID=80ff12fe ISSUER="ARM Limited"
INCREMENT armsd arlmd 1.2 permanent uncouted CC1A7736C638D61B194A \
    HOSTID=80ff12fe ISSUER="ARM Limited"

```

---

The example shown in Example 3-2 shows a typical floating license. This license allows the use of the specified ADS tools on a limited number of workstations on a network, each workstation obtaining permission to run from the license server.

**Example 3-2 Typical single-server floating license**


---

```

SERVER license1.somedomain.com 785f2170 8224
VENDOR arlmd
USE_SERVER
INCREMENT armasm arlmd 1.2 permanent 10 8C7AFE76C560543E02C9 \
    ISSUER="ARM Limited"
INCREMENT compiler arlmd 1.2 permanent 10 FCBA0EA68EB14B3FCB0E \
    ISSUER="ARM Limited"
INCREMENT armulate arlmd 1.2 permanent 10 9CCA5EA616115A993BDD \
    ISSUER="ARM Limited"
INCREMENT axd arlmd 1.2 permanent 10 BC2A1E9693307585B75D \
    ISSUER="ARM Limited"
INCREMENT fromelf arlmd 1.2 permanent 10 FCEA2E76905A58AE82B5 \
    ISSUER="ARM Limited"
INCREMENT armlink arlmd 1.2 permanent 10 6C4A1ED68EDA5884A41F \
    ISSUER="ARM Limited"
INCREMENT codewarrior arlmd 1.2 permanent 10 5CFABED6DB2F9BAE2A31 \
    ISSUER="ARM Limited"
INCREMENT armsd arlmd 1.2 permanent 10 AC7A4E060E5B22957AE1 \
    ISSUER="ARM Limited"

```

---

### 3.3 Information for experienced users

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

- You can run the license management software under either Windows, UNIX, or Linux.
- The ARM vendor daemon program is called:
 

<b>Windows</b>	armlmd.exe
<b>UNIX or Linux</b>	armlmd
- The default license file for computers running ADS is:
 

<b>Windows</b>	\$ARMHOME\licenses\license.dat
<b>UNIX or Linux</b>	\$ARMHOME/licenses/license.dat
- A license management server requires FLEXlm server software to be installed. Installation of ADS includes this by default.
- If you are configuring FLEXlm license management servers, you are recommended to place a copy of the license file in the same directory as the FLEXlm server software on each server.

#### 3.3.1 How FLEXlm finds a license file

The locations to be searched by ARM license-managed software are stored in the ARMLMD\_LICENSE\_FILE environment variable. These locations are always searched before any locations specified in LM\_LICENSE\_FILE, before the generic FLEXlm environment variable, and before the default location assumed by ARM software.

Under Windows it is possible, but not necessary, to store a license file location in the registry at HKEY\_LOCAL\_MACHINE\Software\FLEXlm License Manager\ARMLMD\_LICENSE\_FILE. If this registry entry exists, the location it holds is searched after any locations specified in the ARMLMD\_LICENSE\_FILE environment variable and before any locations specified in LM\_LICENSE\_FILE environment variable.

#### 3.3.2 Using FLEXlm with more than one product

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

The version of FLEX $lm$  used by ARM in ADS 1.2 is 7.2. ARMLMD requires FLEX $lm$  version 7.2 or later. The current ADS license files license you to use not only the current version of ADS but also previous versions of ADS.

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

### Combined license files

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

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

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

To combine the license files for a number of products:

1. Use a text editor to copy the contents of one license file into a new file.
2. Append the contents of the other license files to the new file.
3. Delete all but one set of the identical sets of SERVER lines in the new file.
4. Save the combined license file.
5. If the license files came from multiple vendors, you are recommended to place a copy of the combined file in the default license file location for each vendor.

### Separate license files

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

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

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

———— **Note** —————

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

---

# Chapter 4

## Server Software

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

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

## 4.1 Installing server software on Windows servers

Before any floating license can allow the use of ADS, you must install the FLEXlm server software on one or three servers and start it running.

———— **Note** —————

Using a Windows 95/98/Millennium machine as a license server is not supported.

---

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

1. Copy the files from the flexlm\win32 directory of the ADS CD-ROM into a directory called C:\flexlm on the server.
2. Add C:\flexlm to the PATH.
3. Place a copy of the file license.dat, containing the floating license obtained from ARM Limited, in the C:\flexlm directory of each server, and in the \licenses subdirectory of the ADS installation directory on each computer that has ADS installed. To obtain a floating license, see *Obtaining a permanent license* on page 2-11.

## 4.2 Installing server software on UNIX or Linux servers

Before any floating license can allow the use of ADS, you must install the *FLEXlm* server software on one or three servers and start it running.

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

**Solaris 2.6**            flexlm/solaris

**HP-UX 10.20**        flexlm/hpux

**Redhat Linux 6.1**   flexlm/linux

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

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

1. Copy the TAR file from the appropriate directory onto the license server machine. The destination directory must be included in your PATH.
2. On the license server machine, unTAR the file using the command:  
tar xvf flexlm.tar
3. When you have unTARed the software you must run the makelinks.sh script. Change into the directory containing the unTARed software and type:  
sh ./makelinks.sh
4. Ensure that a copy of the file containing the floating license obtained from ARM Limited is accessible by every computer that is to operate either as a *FLEXlm* server or as an ADS user workstation. To obtain a floating license, see *Obtaining a permanent license* on page 2-11.

## 4.3 Running server software

Server software must be running before any user can run ADS with a floating license.

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

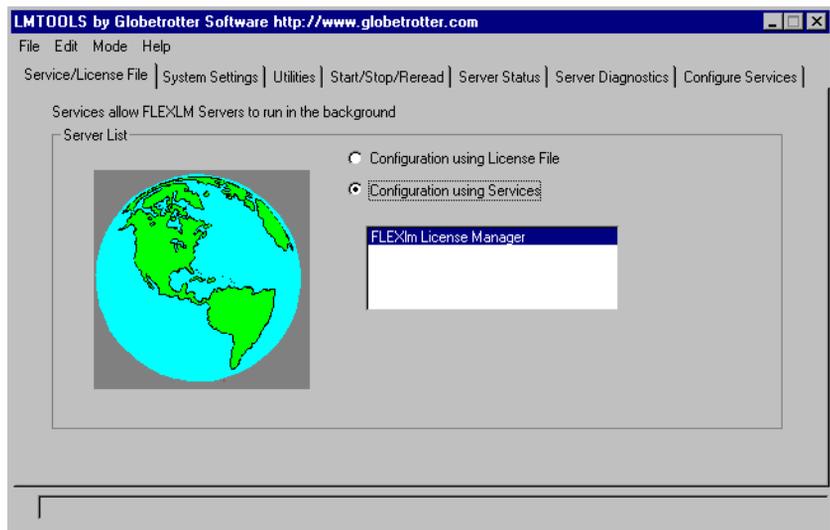
The three-server redundant model requires at least two servers to be running FLEXlm server software at any one time.

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

### 4.3.1 Configuring and starting a Windows server

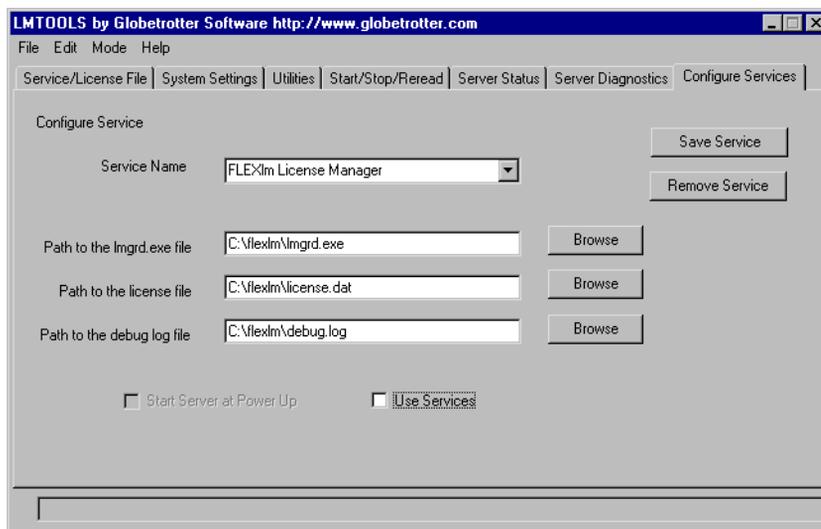
To configure and start running the license server software on a Windows server:

1. Run the `lmtools.exe` program in the `\bin` subdirectory of the ADS installation directory.
2. Select the Configuration using Services option, as shown in Figure 4-1.



**Figure 4-1 Selecting Configuration using Services**

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



**Figure 4-2 Server setup dialog**

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

If you experience any problems with this procedure, refer to Chapter 6 *Troubleshooting*. For further details of the server setup dialog, refer to the *License Administration Tools for Windows* section of the *FLEXlm End Users Guide* supplied as a PDF file on the ADS 1.2 installation CD-ROM.

### 4.3.2 Starting a UNIX or Linux server

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

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

where:

*license\_file\_name*

Specifies the fully qualified pathname of the license file.

*logfile\_name* Specifies the fully qualified pathname to a log file.

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

```
cat logfile_name
```

to see the output from the license server.

If you experience any problems with this procedure, refer to Chapter 6 *Troubleshooting* or to the *FLEXlm End Users Guide* supplied as a PDF file on the ADS 1.2 installation CD-ROM.

# Chapter 5

## Utilities

This chapter describes various utility programs that are available to you as part of the FLEXlm license management system. It contains the following sections:

- *Utilities available* on page 5-2
- *Running utilities with Windows* on page 5-6
- *Running utilities with UNIX or Linux* on page 5-8
- *Further information about utilities* on page 5-9.

## 5.1 Utilities available

This section describes the utilities available to a license management administrator. For information on how to run these programs, refer to the appropriate one of:

- *Running utilities with Windows* on page 5-6
- *Running utilities with UNIX or Linux* on page 5-8.

### 5.1.1 Imcksum

```
lmutil lmcksum [-k] [-c license_file_path]
```

The `lmutil lmcksum` utility performs a checksum of a license file. Use it to check for data entry errors in your license file. `lmutil lmcksum` prints a line-by-line checksum for the file as well as an overall file checksum. If the license file contains `cksum=nn` attributes, the bad lines are indicated automatically.

This utility is particularly useful if you received your license on paper and typed the file, because of the possibility of data entry errors.

`-k` Force the checksum to be case-sensitive.

`-c license_file_path`

If you do not supply this parameter, the utility checks the file `license.dat` in the `licenses` subdirectory of your ADS installation directory. To check any other file, use the `-c` switch to specify the file.

### 5.1.2 Imdiaq

```
lmutil lmdiaq [-c license_file_list] [-n] [feature]
```

This utility enables you to diagnose problems when you cannot check out a license.

`-c license_file_list`

File `license.dat` is checked by default. Use the `-c` switch to check one or more other files. If you specify a list of files, use a colon separator for UNIX or a semicolon separator for Windows.

`-n` Run in non-interactive mode.

*feature* Diagnose this feature only. If you do not specify a feature, all lines of the license file are checked.

The `lmdiaq` program first tries to check the feature. If this fails, the reason is printed.

If the check failed because `lmutil lmdiag` could not connect to the license server then you can run extended connection diagnostics. These diagnostics try to check the validity of the port number in the license file. `lmutil lmdiag` displays the port numbers of all ports that are listening and indicates the ones that are `lmgrd` processes.

If `lmutil lmdiag` finds the `armemd` daemon for the feature being tested, it displays the correct port number to use in the license file.

### 5.1.3 `lmdown`

```
lmutil lmdown [-c license_file_list] [-vendor name] [-q] [-all]
```

The program allows you to shut down gracefully all license daemons on all nodes (both `lmgrd` and all vendor daemons).

`-c license_file_list`

Path(s) to file(s) to shut down. To specify multiple paths, use a colon separator for UNIX or a semicolon separator for Windows.

`-vendor name` If you specify a vendor name, only that vendor daemon is shut down and `lmgrd` is not shut down.

`-q` Do not issue the `Are you sure?` prompt.

`-all` If multiple servers are specified, shuts down all of them.

You are recommended to restrict the execution of `lmutil lmdown` to license administrators, by starting `lmgrd` with the `-p -2` switch, because shutting down the server causes loss of licenses.

To disable `lmdown`, the license administrator can use `lmgrd -x lmdown`.

To stop and restart a single vendor daemon, use `lmutil lmdown -vendor name`, then `lmreread -vendor name`.

### 5.1.4 `lmhostid`

```
lmutil lmhostid [-n] [vsn]
```

This program returns the hostid of the computer. This is the hostid used by `FLEXlm`, which is the network card address of the network card if one is present, otherwise the hard disk serial number.

`-n` Print the hostid with no header.

`vsn` Print the hostid based on the volume serial number of the Windows C:\ drive.

### 5.1.5 Imremove

```
lmutil Imremove [-c license_file_list] feature user user_host display
```

This utility allows you to remove a single user license for a specific feature. For example, when a user is running the software and the host crashes, the user license is sometimes left checked out and unavailable to other users. Imremove frees the license and makes it available to other users.

*-c license\_file\_name*

The full pathname of the license file to be used instead of the default file.

*feature* The name of the feature the user has checked out.

*user* The name of the user.

*user\_host* The name of the host the user is logged into.

*display* The name of the display where the user is working.

You can obtain the user, user\_host, and display information from the output of `lmutil lmstat -a`

If the application is active when its license is removed by Imremove, it checks out the license again at the next application heartbeat.

### 5.1.6 Imreread

```
lmutil Imreread [-c license_file_list] [-vendor name] [-all]
```

This utility causes the license daemon to reread the license file, and starts any new vendor daemons that have been added. All the existing daemons are signaled to reread the license file to check for any changes in their licensing information.

*-c license\_file\_list*

File `license.dat` is reread by default. Use the `-c` switch to reread one or more other files. If you specify a list of files, use a colon separator for UNIX or a semicolon separator for Windows.

*-vendor name* If you specify a vendor name, only that vendor daemon rereads the license file. If the vendor daemon is not running, lmgrd starts it.

*-all* If more than one lmgrd is specified, instructs them all to reread.

To disable lmutil Imreread, the license administrator can use `lmgrd -x Imreread`.

lmutil Imreread does not cause server host names or port numbers to be reread from the license file. To make any changes to those items effective, you must restart lmgrd.

To stop and restart a single vendor daemon, use `lmutil lmdown -vendor name`, then `lmutil lmread -vendor name`.

### 5.1.7 lmstat

```
lmutil lmstat [-a] [-A] [-c license_file_list] [-f [feature]] [-S [vendor]]
```

This utility helps you to monitor the status of all network licensing activities, including:

- the daemons that are running
- users of individual features
- users of features served by a specific vendor daemon.

The optional arguments are:

- a            Displays all information.
- A            Lists all active licenses.
- c *license\_file\_list*  
              Uses all the specified license file(s).
- f [*feature*] Lists users of a specific feature.
- S [*vendor*] Lists all users of the features of a specific vendor.

### 5.1.8 lmver

```
lmutil lmver filename
```

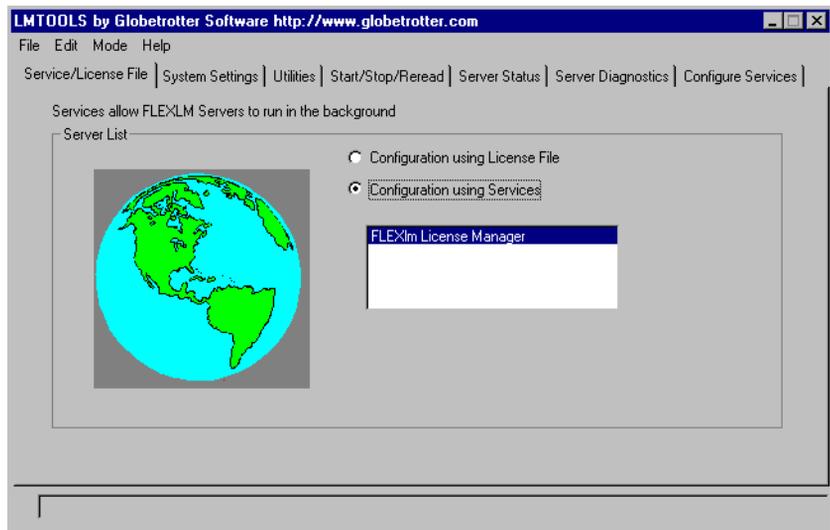
This utility reports the FLEXlm version of a specific library or binary file.

## 5.2 Running utilities with Windows

The flexlm directory on your product CD-ROM contains subdirectories holding the license management utilities and the ARM vendor daemon (arm1md) for various platforms. These programs are copied into the bin subdirectory of your ADS installation directory when you install ADS.

### 5.2.1 GUI interface

A GUI interface is available offering a convenient way of invoking the FLEXlm utilities. To start the GUI shown in Figure 5-1, run program lmtools in the \bin subdirectory of your ADS installation directory and select the Configuration using Services option.



**Figure 5-1 Lmtools main window**

Click on each tab to explore the available facilities. The Utilities tab, for example, displays the window shown in Figure 5-2 on page 5-7.

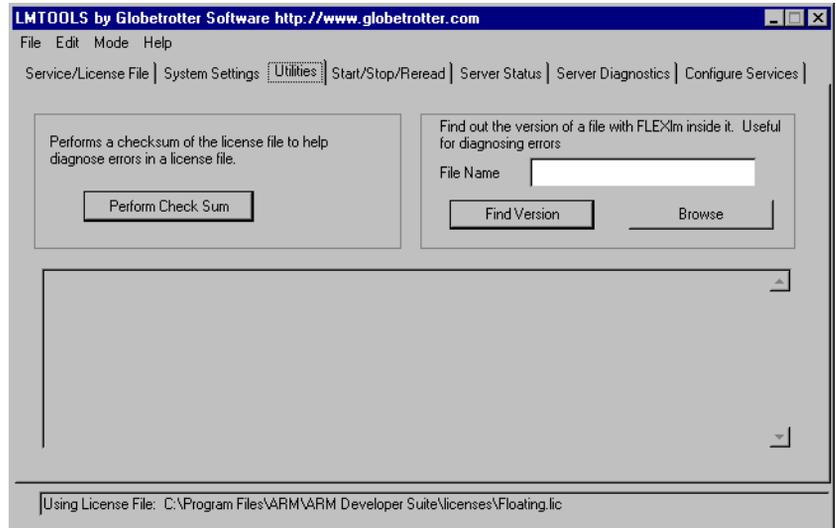


Figure 5-2 Utilities window

## 5.2.2 Command-line interface

You can also invoke FLEX $lm$  utilities by issuing MS-DOS commands. All the utilities are actually contained within the single executable `lmutil`, and you specify name of the utility you want to run as an argument when you run `lmutil`. For example:

```
lmutil lmcksum -c license_file_name
```

All utilities take the following arguments:

- v            Print version and exit.
- verbose     Print longer descriptions for all errors found.
- c *l\_file*   Operate on a specific license file.

## 5.3 Running utilities with UNIX or Linux

The `flexlm` directory on your product CD-ROM contains subdirectories holding the license manager utilities and the ARM vendor daemon (`armlmd`) for various platforms. These programs are copied into a subdirectory of the installation directory of your computer when you install ADS, as described in *ADS 1.2 with UNIX or Linux* on page 2-6.

All the license tools are actually contained within the single executable `lmutil`, the behavior of the program is determined by the value of its `argv[0]`.

### 5.3.1 Short name links

Running the script `makelinks.sh` allows you to execute the utilities using their short names. For example, you can type `lmver` instead of `lmutil lmver`.

### 5.3.2 Privileges required

The `lmdown`, `lmremove`, and `lmreread` commands are privileged. If you started `lmgrd` with the `-p 2` switch then you must be a license administrator to run any of these three utilities.

A license administrator is a member of the UNIX or Linux `lmadmin` group or, if that group does not exist, a member of group `0`.

In addition, `lmgrd -x` can disable `lmutil lmdown` and `lmutil lmremove`.

### 5.3.3 Arguments common to all utilities

All utilities take the following arguments:

- `-v` Print version and exit.
- `-verbose` Print longer descriptions for all errors found.
- `-c l_file` Operate on a specific license file.

## 5.4 Further information about utilities

For further information about the *FLEXlm* utility programs, refer to the *FLEXlm End Users Guide*, supplied as a PDF file on the ADS CD-ROM.

If you want more information about a *FLEXlm* error message, try repeating the command that produced the error with the addition of the `-verbose` argument (see *Arguments common to all utilities* on page 5-8).



# Chapter 6

## Troubleshooting

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

- *Summary of requirements* on page 6-2
- *Problems and solutions* on page 6-4
- *FAQs and answers* on page 6-9
- *Further sources of information* on page 6-10.

## 6.1 Summary of requirements

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

### 6.1.1 CD-ROMs available

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

- ADS for Windows, for installation on computers running MS Windows
- ADS for UNIX or Linux, for installation on computers running UNIX or Linux.

You must use the correct CD-ROM for each computer.

### 6.1.2 License management

Three configurations of license management are available:

- A node-locked license, permitting use of ADS on a single computer running MS Windows
- One computer, running MS Windows, UNIX, or Linux, acting as a license server to control the use of ADS on a number of computers, each running MS Windows, UNIX, or Linux, on the same network
- Three computers, each running one of MS Windows, UNIX, or Linux, communicating with one another and jointly controlling the use of ADS on a number of computers, each running MS Windows, UNIX or Linux, on the same network.

### 6.1.3 Types of license

The two available types of license are:

- temporary
- permanent.

The installation of ADS on a computer usually includes the installation of a temporary license. This enables you to use all the available features of ADS for a strictly limited time.

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

#### 6.1.4 File time and date stamps

FLEX $lm$  makes some checks to ensure that the use of a temporary license is not being extended by alteration of the system clock. One consequence of this is that operational problems are likely to arise if any files exist dated later than the current system date.

#### 6.1.5 Software required

To run ADS you require:

**ADS software** You must install ADS software on every computer on which ADS is to be run.

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

##### **License management software**

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

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

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

Usually, you name the ADS license file `license.dat` and store it in the `licenses` subdirectory of the ADS installation directory. The CodeWarrior IDE is supplied as part of ADS and its use is also controlled by a separate Metrowerks license file called `license.dat`. The CodeWarrior IDE license file is stored in the ADS installation directory and is installed automatically as part of ADS.

## 6.2 Problems and solutions

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

- *Hostname*
- *Hostid*
- *Hard disk serial number* on page 6-5
- *Communicating with the server* on page 6-5
- *License apparently missing* on page 6-6
- *License expiry warning* on page 6-7
- *Initialization failure* on page 6-7
- *Lack of environment space on a Windows 9x platform* on page 6-8.

### 6.2.1 Hostname

You might require the hostnames of one or three computers required to act as FLEXlm servers. The hostname is the name by which a computer is known on your network. To find the hostname of any computer running Windows, select:

**Start → Settings → Control Panel → Network → Identification**

Alternatively, issue the MS-DOS command:

```
ipconfig /all
```

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

### 6.2.2 Hostid

You might require the hostid of:

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

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

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

```
lmutil lmhostid
```

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

An alternative way to find the physical address of a network card is to issue the command:

```
ipconfig /all
```

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

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

### 6.2.3 Hard disk serial number

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

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

```
lmutil lmhostid -vsn
```

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

### 6.2.4 Communicating with the server

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

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

To solve this problem:

1. Try running the `lmdiag` utility, which is designed primarily for this purpose.
2. Verify that the application is using the proper license file.

3. Verify that specified server machine is up and reachable by executing another command that uses TCP, such as telnet, from the client to the server.
4. Verify that the vendor daemon is running (you can use ps on the server to look for it). To restart it, see *Running server software* on page 4-4.
5. Examine the license log file to see if any problems are reported, particularly messages indicating that the vendor daemon has quit.
6. Run `lmstat -a` from the server machine to verify that the vendor daemon is alive.
7. Run `lmstat -a` from the client machine to verify the connection from client to vendor daemon across the network.
8. Try using `telnet hostname portnum` where *hostname* and *portnum* are the same as on the SERVER line in your license file.

### 6.2.5 License apparently missing

When you try to run AXD, you might see the message:

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

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

If your computer is running Windows, use the ARM License Wizard to install the permanent license file. If your computer is running UNIX or Linux, you must install the permanent license file yourself (see *Obtaining a permanent license* on page 2-11).

By default, your license file is called `$ARMHOME\licenses\license.dat` (Windows) or `$ARMHOME/licenses/license.dat` (UNIX or Linux), where `$ARMHOME` is the ADS installation directory.

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

A summary follows of the algorithm used in ADS when searching for a license file:

```
if (ARMLMD_LICENSE_FILE env-var set)
{
    Search ARMLMD_LICENSE_FILE for feature.
    if (feature found)
    {
        Stop searching
    }
}
if (LM_LICENSE_FILE env-var set)
```

```

{
  Search LM_LICENSE_FILE for feature.
  if (feature found)
  {
    Stop searching
  }
if (ARMHOME env-var set)
{
  Search $ARMHOME\licenses\license.dat           (Windows)
  Search $ARMHOME/licenses/license.dat          (UNIX or Linux)
  if (feature found)
  {
    Stop searching
  }
}
else
{
  Search c:\arm\licenses\license.dat           (Windows)
  Search /opt/arm/licenses/license.dat          (UNIX or Linux)
  if (feature found)
  {
    Stop searching
  }
}
Print error saying that license was not found.

```

### 6.2.6 License expiry warning

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

### 6.2.7 Initialization failure

If you try to run AXD on a computer without first registering all the necessary OCX files, a warning message is displayed. The message, and the action you need to take, depend on whether you are running with Windows, or with UNIX or Linux.

#### Initialization failure with Windows

If the OCX files were not registered as described in *Installing ADS 1.2 with Windows* on page 2-2 when you try to run AXD, you see the following message:

```
Router Init Failed
```

To register the OCX files, navigate to the \bin subdirectory of the ADS installation directory, and run register.bat.

### **Initialization failure with UNIX or Linux**

If the OCX files were not registered as described in *User setup and OCX registration* on page 2-8 when you try to run AXD, you see the following message:

AXD initialization failed. Ensure all the relevant OCXs are registered.

To register the OCX files, navigate to the /bin subdirectory of the ADS installation directory, and run register.sh.

### **6.2.8 Lack of environment space on a Windows 9x platform**

After repeated installs and uninstalls of ADS on a Windows 9x platform it is possible that you might have to manually reset your PATH and edit your AUTOEXEC.BAT file. For details, see the note at the end of *Uninstalling ADS 1.2 with Windows* on page 2-3.

## 6.3 FAQs and answers

Some frequently-asked questions relating to the installation or running of ADS or FLEXlm are listed in this section, and answers given.

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

**A** If you are using UNIX or Linux, you have probably not run the `make1inks.sh` script that is in the directory that you unTARed the FLEXlm software into. This script creates a series of links to the `lmutil` program, one of which is for `lmhostid`.

If you are using Windows, this command is not available. Instead, type `lmutil lmhostid`, but see also *Hostid* on page 6-4.

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

**A** ADS applications look for file `$ARMHOME\licenses\license.dat`.

The value of `$ARMHOME` is set by the installation program to be the top-level directory that contains the ADS software.

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

**A** You can override the location of the ADS license files by setting the environment variables `$ARMLMD_LICENSE_FILE` or `$LM_LICENSE_FILE`. You can set these environment variables to contain one or more filenames, or directory names. If you specify a directory name, do not include the final slash character. The files and directories are searched in 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. The contents of `$ARMLMD_LICENSE_FILE` are searched before the contents of `$LM_LICENSE_FILE`. `$ARMLMD_LICENSE_FILE` is read only by ARM licensed software. `$LM_LICENSE_FILE` is read by all license managed software.

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

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

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

## 6.4 Further sources of information

This chapter is concerned with problems and questions specific to ADS and its use of *FLEXlm* for license management.

For further information about software installation refer to MS Windows, UNIX, or Linux documentation. For further information about *FLEXlm* refer to the *FLEXlm End Users Guide* PDF file supplied on the ADS CD-ROM.

# Glossary

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

<b>ADS</b>	See <i>ARM Developer Suite</i> .
<b>ARM Developer Suite</b>	A suite of applications, together with supporting documentation and examples, that enable you to write and debug applications for the ARM family of <i>RISC</i> processors.
<b>Debugger</b>	An application that monitors and controls the execution of a second application. Usually used to find errors in the application program flow.
<b>Deprecated</b>	A deprecated option or feature is one that you are strongly discouraged from using. Deprecated options and features will not be supported in future versions of the product.
<b>FLEXIm</b>	The license management software (see <i>License management software</i> ) used to control the use of ADS (see <i>ARM Developer Suite</i> ).
<b>Host</b>	In this manual, host means the computer on which you are running applications software such as ADS or FLEXIm. In other contexts the term can mean a computer that provides data and other services to another computer.
<b>IDE</b>	See <i>Integrated Development Environment</i> .

**Integrated development environment (IDE)**

The CodeWarrior IDE is one example of an IDE, offering facilities for automating image-building and file-management processes.

**License management software**

Software that controls the usage of software applications programs. For example, a program might be licensed for use on one specific computer only, or for simultaneous use by a limited number of users on a network. See also *FLEXlm*.

**Permanent license**

A license that enables you to continue using ADS (see *ARM Developer Suite*) after the initial temporary license has expired. See also *License management software*.

**Platform**

A combination of a particular type of computer hardware meeting a minimum specification with a particular operating system of a specific release or later.

**Script**

A file specifying a sequence of debugger commands that you can submit to the command-line interface using the obey command. This saves you from having to enter the commands individually, and is particularly helpful when you want to issue a sequence of commands repeatedly.

**SDT**

See *Software Development Toolkit*.

**Software Development Toolkit (SDT)**

*Software Development Toolkit* is an ARM product still supported but superseded by ADS (see *ARM Developer Suite*).

**Temporary license**

A license that enables you to use ADS (see *ARM Developer Suite*) as soon as you have installed it, but for only a limited period. During that time you can obtain a permanent license enabling you to continue using ADS. See also *License management software*.

# Index

## A

About this book vi  
Administrator's utilities 5-2  
ADS CD-ROM 1-4  
ADS installation  
    under Linux 2-6  
    under UNIX 2-6  
    under Windows 2-2  
Advanced information 3-6  
Answers to questions 6-9  
Applying for a permanent license 2-11  
Audience, intended vi

## B

Book, about this vi

## C

CD-ROM contents 1-4

## C

Comments  
    on documentation x  
    on products x  
Computer configurations 3-4  
Counted license 3-3

## D

Destinations of installed files 1-9  
Directories  
    for installed files 1-9  
    on UNIX or Linux CD-ROM 1-5  
    on Windows CD-ROM 1-4

## E

Environment variables 3-6, 6-6

## F

FAQs 6-9  
Feedback x  
Files  
    destination of installed 1-9  
    selecting for installation 1-7  
Finding a license file 3-6, 6-6  
FLEXIm  
    multiple licensed products 3-6  
    utilities 5-2, 5-6, 5-8  
    versions 3-6  
FLEXIm server software  
    installing on Linux server 4-3  
    installing on UNIX server 4-3  
    installing on Windows server 4-2  
    starting on Linux server 4-6  
    starting on UNIX server 4-6  
    starting on Windows server 4-4  
    when it is required 4-4  
Floating license 3-3

- G**
- Glossary Glossary-1
- H**
- Hostid 6-4  
HP workstation requirements 1-3
- I**
- Installing  
  a permanent license 2-14  
  ADS under Linux 2-6  
  ADS under UNIX 2-6  
  ADS under Windows 2-2  
  temporary license under Linux 2-9  
  temporary license under UNIX 2-9  
  temporary license under Windows 2-3
- Intended audience vi
- L**
- License  
  counted 3-3  
  finding 3-6, 6-6  
  floating 3-3  
  information required 2-12  
  installing a permanent 2-14  
  node-locked 3-2  
  obtaining a permanent 2-11  
  temporary 3-2  
  to use multiple products 3-6
- License management  
  questions 6-9  
  software 4-4
- Linux  
  ADS installation 2-6  
  requirements 1-3
- lmchecksum utility 5-2  
lmdiag utility 5-2  
lmdown utility 5-3  
lmhostid utility 5-3  
lmremove utility 5-4  
lmreread utility 5-4
- lmstat utility 5-5  
lmver utility 5-5
- N**
- Node-locked license 3-2
- O**
- OCX files, registering 2-3
- P**
- Permanent license  
  installing 2-14  
  obtaining 2-11
- Platforms, supported 1-2
- Problems and their solutions 6-4
- Publications, related vii
- Q**
- Questions and their answers 6-9
- R**
- Readership, expected vi
- Registering OCX drivers 2-3
- Reinstalling  
  ADS for UNIX or Linux 2-10  
  ADS for Windows 2-4
- Related publications vii
- Requirements, hardware and software 1-2, 6-2
- S**
- Searching for a license 3-6, 6-6
- Selecting files to install 1-7
- Server and workstation configurations 3-4
- Server software  
  installing on Linux server 4-3
- installing on UNIX server 4-3  
installing on Windows server 4-2  
starting on Linux server 4-6  
starting on UNIX server 4-6  
starting on Windows server 4-4  
when it is required 4-4
- Solutions to problems 6-4
- Structure of this book vi
- Subject matter of chapters vi
- Summary of requirements 6-2
- SunSPARC requirements 1-2
- Supported platforms 1-2
- T**
- Temporary license 3-2
- Terminology Glossary-1
- U**
- Uninstalling  
  ADS for UNIX or Linux 2-10  
  ADS for Windows 2-3
- UNIX  
  ADS installation 2-6  
  requirements 1-2, 1-3
- Utilities 5-2  
  lmchecksum 5-2  
  lmdiag 5-2  
  lmdown 5-3  
  lmhostid 5-3  
  lmremove 5-4  
  lmreread 5-4  
  lmstat 5-5  
  lmver 5-5  
  running under UNIX or Linux 5-8  
  running under Windows 5-6
- W**
- Windows  
  ADS installation 2-2  
  requirements 1-2
- Workstation and server configurations 3-4