MATLAB®

The Language of Technical Computing

Computation

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Programming

The MATH WORKS Inc.

Installation Guide for PC

Release 12 (MATLAB 6 Family of Products)

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Installation Guide for PC

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Printing History:

December 1996	First printing	New for MATLAB 5
May 1997	Second printing	Revised for MATLAB 5.1
January 1999	Third printing	Revised for MATLAB 5.3 (Release 11)
November 2000	Fourth printing	Revised for MATLAB 6.0 (Release 12)

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Standard Installation Procedure

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Start Here

This section describes how to install the MATLAB family of products, Release 12, on your PC. Use this standard installation procedure if you have an *individual* license or a *group* license.

An individual license allows products to be installed and used on a single computer. Group licenses allow a site to install MATLAB on up to a designated number of systems, using one license for all installations.

For information about setting up a concurrent installation, see Chapter 2, “Concurrent License Installation Procedure.”

This chapter describes:

- Steps you should perform before you install
- The standard installation procedure
- Recommended steps you should perform after a successful installation

This section also describes how to remove a MATLAB installation and how to add products to an existing installation.

Before You Install

Before you run the MathWorks Installer program:

- Turn off virus checking software.
- Exit any programs you may have running, especially existing copies of MATLAB.
- Make sure you have the Personal License Password (PLP) that you received from The MathWorks via e-mail when you purchased your software. If you don't have your PLP, see "Product Licensing" for more information.
- Make sure your system satisfies the requirements of the software you intend to install. For more information, see "System Requirements" on page 1-4.

Note To install MATLAB on Microsoft Windows NT or Windows 2000 systems, you must have administrator privileges.

Product Licensing

When you purchase products with an individual license, The MathWorks sends you a *Personal License Password* (PLP) by e-mail or fax. Your PLP identifies the products that you are licensed to install. A PLP is a series of five-digit numbers, prefixed with a two-digit release code, such as,

```
12-12345-12345-12345-12345-12345...
```

Obtaining Your Personal License Password

If you did not receive your PLP, you can obtain one during the installation procedure by clicking on the **Get my PLP** button on the **Personal License Password** dialog box. To get your PLP this way, you must have an Internet connection and your MATLAB Access number.

You can also obtain your PLP by contacting The MathWorks via:

- The Web at `www.mathworks.com/mla`. Log in to MATLAB Access using your last name and Access number. MATLAB Access membership is free of charge and available to all customers. The MathWorks enrolls the primary contact

on each license automatically in MATLAB Access and sends the contact an Access number sent via e-mail.

- E-mail at `service@mathworks.com`.
- Telephone at 508-647-7000; ask for Customer Service.
- Fax at 508-647-7001.

Customers outside North America should contact their local distributor.

When you request a PLP, please have ready, or include in your e-mail or fax, these items:

- Your License Number.

  If you have not previously installed MATLAB at your site, you can find your License Number on the upper right-hand corner of the packing slip. Customers outside North America can obtain license information from their local distributor.

  If you have a previous version of MATLAB running at your site, you can obtain your License Number by entering the `license` command or the `ver` command at the MATLAB command prompt.
- Your e-mail address.

System Requirements

For the most up-to-date information about system requirements, see the system requirements page, available in the products area at the MathWorks Web site (`www.mathworks.com`):

- Pentium, Pentium Pro, Pentium II, Pentium III, or AMD Athlon processor
- Microsoft Windows 95, Windows 98 (original and Second Edition), Windows NT 4.0 (with Service Pack 5 for Y2K compliancy) or Windows 2000
- CD-ROM drive (for installation)
- 64 MB RAM minimum for Windows 95, 98, NT 4.0 and 2000; 128 MB RAM strongly recommended
- Disk space varies depending on size of partition and installation of online help files. The MathWorks Installer will inform you of the hard disk space requirement for your particular partition.
- 8-bit graphics adapter and display (for 256 simultaneous colors)

Other recommended items include:

- Microsoft Windows supported graphics accelerator card
- Microsoft Windows supported printer
- Microsoft Windows supported sound card
- Microsoft Word 7.0 (Office 95), 8.0 (Office 97), or Office 2000 is required to run the MATLAB Notebook.

One of the following is required to build your own MEX-files:

- Compaq Visual Fortran 5.0 or 6.1
- Microsoft Visual C/C++ version 5.0 or 6.0
- Borland C/C++ version 5.0, 5.02
- Borland C++Builder version 3.0, 4.0, or 5.0
- Lcc 2.4 (bundled with MATLAB)

Adobe Acrobat Reader is required to view and print the MATLAB online documentation in PDF format.

MATLAB can be set up to operate on a network via the TCP/IP communications protocol.

Standard Installation Procedure

During the installation process, you answer three basic questions:

- Who: Specify your name, your company name, and your license information (PLP)
- What: Select the products and documentation you want to install
- Where: Choose the directory in which you want to install the MathWorks products

The MathWorks Installer program (`setup.exe`) steps you through the process.

This section provides a brief summary of the installation procedure followed by a detailed step-by-step procedure.

Note If you are performing multiple standard installations at your site, do not attempt to "clone" MATLAB installations by copying the MATLAB image from one system to another. The cloned installations will fail because MATLAB associates a license with a particular system.

Standard Installation Checklist

This checklist summarizes the steps in the standard installation procedure. You can complete the installation by simply following the instructions in the dialog boxes presented by the installer. For a more detailed information about any of the steps, see "Installation Instructions" on page 1-7.

Standard Installation Checklist

- ❑ Turn off any virus checking software you have running.
- ❑ Exit any existing copies of MATLAB you have running.
- ❑ Have your Personal License Password (PLP) handy.
- ❑ Insert the MathWorks product CD into your CD-ROM drive.
- ❑ Install the Microsoft Java Virtual Machine (JVM), if prompted. The MathWorks Installer requires the Microsoft JVM.

  Note: The Java installation requires a system reboot.
- ❑ Enter your PLP.
- ❑ Review the software license agreement.
- ❑ Enter your name and your company name.
- ❑ Specify the products you want to install and the directory in which you want to install them.
- ❑ Verify the installation by starting MATLAB and running one of the demo programs.

After You Install

- ❑ Customize MATLAB environment options, if desired.
- ❑ Perform any additional configuration required by the products you installed.

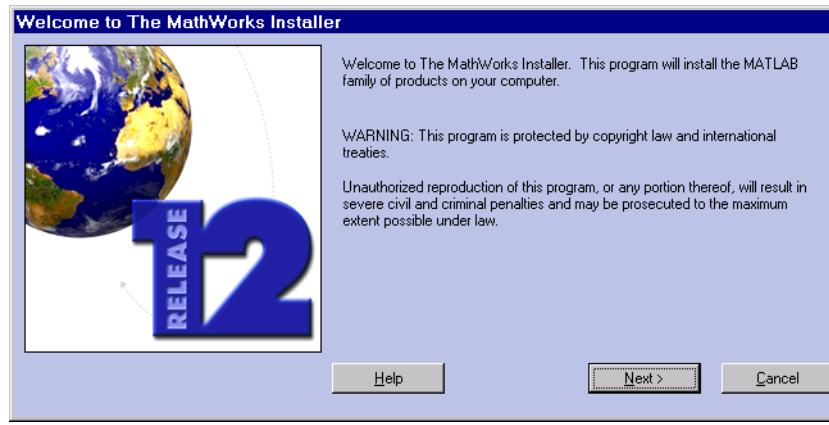
Installation Instructions

This section details each step of the installation process. If you encounter any trouble during installation, see Chapter 4, “Troubleshooting a PC Installation” for answers to some common installation problems.

Note Before you start the installer, remember to turn off any virus protection software. Also, if you are installing on a Windows NT or Windows 2000 system, you must have administrator privileges.

---

1 Insert the MathWorks product CD into the CD-ROM drive or double-click on the installer file you downloaded from the MathWorks Web site. The MathWorks Installer starts automatically, displaying the **Welcome to the MathWorks Installer** dialog box.

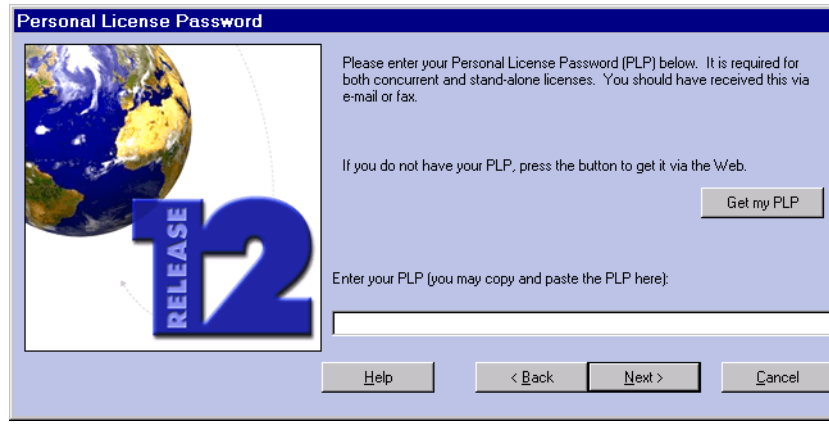


If the installer does not start, open a Windows Explorer window, click on your CD-ROM drive, and double-click the `setup.exe` program in the top level directory.

Note The MathWorks Installer requires the Microsoft Java Virtual Machine (JVM). If your system does not have the required version of the JVM, the installer prompts you to install it. When the JVM installation is complete, you must reboot your system. If you leave the MathWorks product CD in your CD-ROM drive during the JVM installation, the MATLAB installation resumes automatically.

---

2 Enter your Personal License Password (PLP) in the **Personal License Password** dialog box and click **Next**. To avoid typing errors, copy the PLP from the license e-mail and paste it into this dialog box, using **Ctrl+V**.



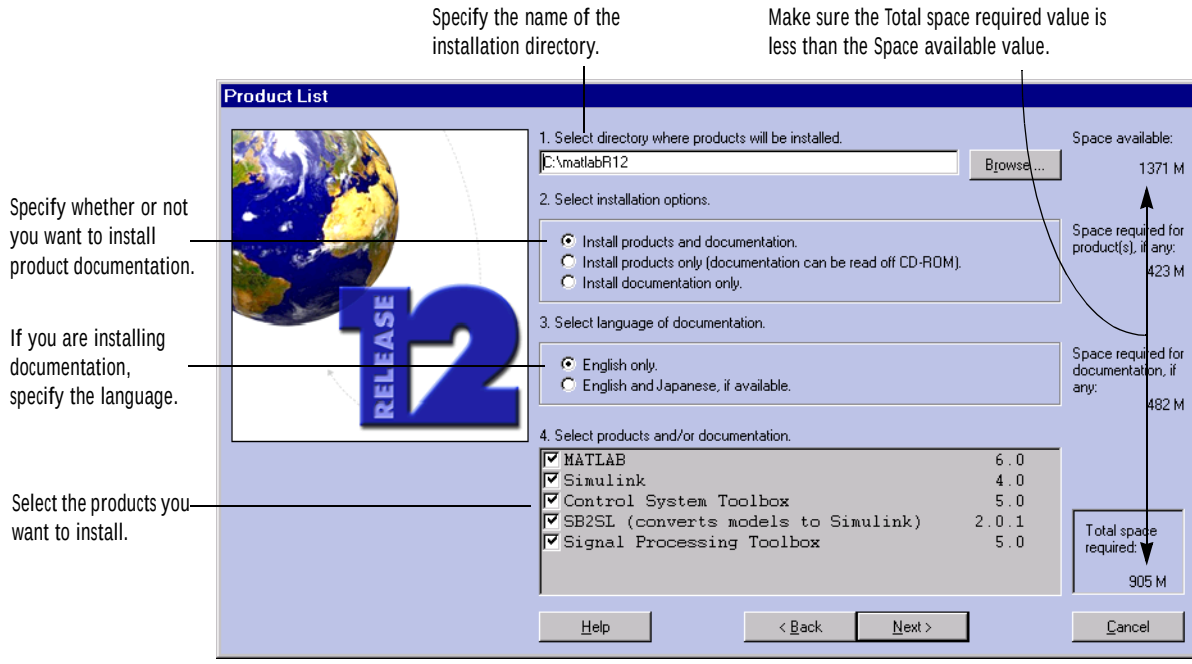
Note Do not confuse your PLP with your License Number. A PLP is a series of five-digit numbers prefixed with a two-digit release code. For more information about product licensing, see “Product Licensing” on page 1-3.

---

3 Review the software licensing agreement and, if you agree with the terms, click **Yes**. After installation, you can view the license agreement in the file `license.txt` located in the top level of your MATLAB installation directory.

4 Enter your name and your company name in the **Customer Information** dialog box and click **Next**.

5 Select the products you want to install and the directory in which you want to install them in the **Product List** dialog box. (Default values are displayed.)



Click **Next** to install all the products and documentation you are licensed to install into the default directory (`C:\matlabR12`). If you want to specify a different installation directory, note the following:

- Install MATLAB in a new directory, even if you are upgrading a previously installed version of MATLAB.
- Do not use the word “private” as the installation directory name.
- Do not use a directory name that contains spaces or that starts with an at (@) sign.

If the directory that you specify does not exist, the installer creates it.

Selecting Products. If you do not want to install a particular product, deselect it in the list by clicking on the check mark next to its name. If you

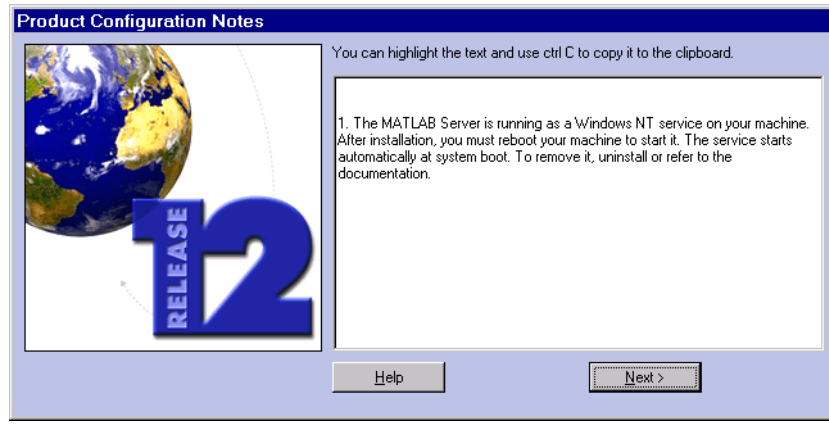
deselect a component now, you can always install it later. See “Installing Additional Products” on page 1-19 for more information.

Installing Documentation. If you are installing the documentation, the installer prompts you to insert the documentation CD into your CD-ROM drive to complete the installation. If you plan to view the documentation from the CD or install the documentation in a directory other than the MATLAB installation directory, choose the product-only option. If you change your mind, you can always install the documentation later.

Note The installer does not install the PDF version of the documentation. The PDF documentation is available on the CD or at the MathWorks Web site and is accessible through the Help browser.

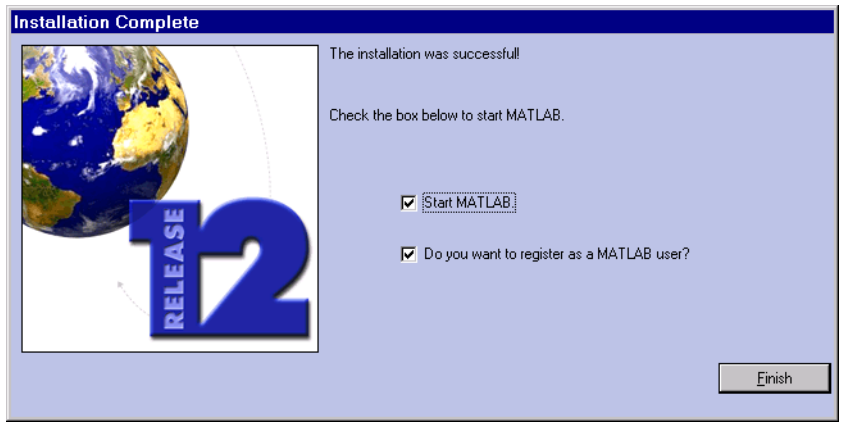
---

6 Depending on which products you selected, the installer may display a dialog box containing product-specific configuration information.



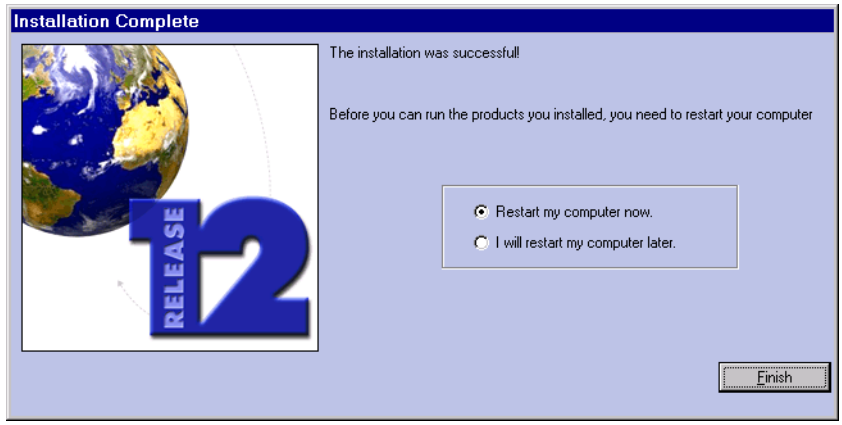
You can copy information from this dialog box, such as configuration commands, for use later when you start MATLAB. See “Configuring Certain Release 12 Products” on page 1-14 for more information.

7 When the installer finishes, it displays the **Installation Complete** dialog box.



In this dialog box, you choose whether to start MATLAB and whether to register as a MATLAB user. If you choose the latter, the installer starts an internet browser and opens the MATLAB Access page at the MathWorks Web site.

If you have installed products that require you to reboot your system before you can run them, the installer displays this alternate **Installation Complete** dialog box.



After You Install

This section describes tasks you can perform after a successful installation, including:

- "Starting MATLAB"
- "Setting Your Initial Current Directory"
- "Setting Up MATLAB Environment Options" on page 1-14
- "Configuring Certain Release 12 Products" on page 1-14

This section also includes pointers to sources of additional information about MathWorks products.

Starting MATLAB

There are several ways to start MATLAB:

- Double-click on the MATLAB icon (called a "short cut") that the installer creates on your desktop.

- Click on the **Start** button, view the **Programs** menu, and click on the **MATLAB Release 12** entry. Select **MATLAB R12** from this menu.

The installer also puts a short cut to the MATLAB executable (`matlab.exe`) in the top-level installation directory (`$MATLAB`).

Setting Your Initial Current Directory

By default, when you start MATLAB using a short cut, the initial current directory is the `$MATLAB\work` directory, where `$MATLAB` represents your installation directory. You can, however, use any directory as your MATLAB initial current directory.

The `\work` directory is a good place to store the M-files you modify and create because it is not overwritten by the installer during an overwrite installation. This directory is also not deleted when you use the MathWorks Uninstaller program to remove a MATLAB installation.

To specify another directory as your initial current directory, right-click on the MATLAB short cut that the installer creates on your desktop and select the **Properties** option. Specify the name of the directory in the **Start in** field.

Setting Up MATLAB Environment Options

To include welcome messages, default definitions, or any MATLAB expressions that you want executed every time MATLAB is invoked, create a file named `startup.m` in the `toolbox\local` directory. MATLAB executes this file each time it is invoked.

For example, to change the default paper size used for printing to A4, include the following line in your `startup.m` file.

```
set(0,'DefaultFigurePaperType','a4')
```

Configuring Certain Release 12 Products

Certain Release 12 products require additional configuration. The following table lists these products and the commands used to configure them. If you installed any of these products, see the documentation for that product for detailed configuration information.

Product	Command
MATLAB Notebook	`notebook -setup`
MATLAB Runtime Server	`rtsetup`
Real-Time Windows Target	`rtwintgt -setup`

Excel Link Versions

By default, Excel Link (a separately orderable product) supports Excel 97. However, the installer puts two versions of Excel Link in the `toolbox\exlink` subdirectory. Files with 95 appended to their names (e.g. `excllink95.xla` and `ExliSamp95.xls`) correspond to Excel 7. Files without this identifier (e.g., `excllink.xla` and `ExliSamp.xls`) correspond to Excel 97. Use the appropriate files for your version of Excel.

Where to Go from Here

After successfully installing MATLAB, you are probably eager to get started using it. This list provides pointers to sources of information and other features you may find helpful in getting started with MATLAB.

Task	Description
To get an overview of MATLAB and its capabilities	Read *Getting Started with MATLAB*.
To find out what's new in this release	*R12 Release Notes*
To start a product or run one of the demonstration programs	Use the Launch Pad.
To get information about specific MATLAB features	Choose the **Help** item in the MATLAB menu bar to view reference and tutorial information in hyperlinked HTML form.
To get help with specific questions you can't find answered in the documentation	Go to the MathWorks Web site (`www.mathworks.com`) and use the Technical Support solution search area to find more information.

Removing a MATLAB Installation

Every MATLAB installation includes a program, called the uninstaller (`uninstall.exe`), that you can use to remove a MATLAB installation from your system. This section describes how to:

- Start the uninstaller
- Use it to remove software from your computer

This section also includes information about removing a MATLAB installation that uses dongles.

Note Make sure to shut down MATLAB before trying to uninstall it.

Starting the Uninstaller

There are several ways to start the MATLAB uninstaller.

- Click on the **Start** button, select the **Programs** option, and select the **MATLAB Release 12** entry. Click the **R12 Uninstaller** option on the MATLAB menu.

- Click on the **Start** button, select the **Settings** option and click **Control Panel**. In the Control Panel, double-click the **Add/Remove Programs** option. Select the MATLAB Family of Products R12 from the list of products.

When you start the uninstaller, it displays the **Uninstall Product List** dialog box. See “Running the Uninstaller” for more information.

Running the Uninstaller

In the **Uninstall Product List** dialog box, select the products you want to remove by clicking the check box next to their names. If you remove MATLAB, you automatically remove all other MathWorks products.

Note After you run the uninstaller, the MATLAB installation directory remains on your system, empty except for the `\uninstall` subdirectory and the `\work` subdirectory. To completely remove a MATLAB installation, you must delete these directories. You may want to move any M-files you created in the `\work` directory to another directory before deleting it.

When you run the uninstaller, it may display a dialog box, asking if you want to remove the `mwsamp.ocx` file. This file is an ActiveX control that is registered as a shared file during the MATLAB installation. You may remove this file.

Removing Installations That Use Dongles

In some installations, MATLAB requires a *dongle*. A dongle is a hardware-based security device that attaches to the serial or parallel printer port of a desktop computer. It uses embedded codes and passwords to control access to software applications.

If your system uses dongles, the uninstaller asks if you want to delete the dongle drivers. If other applications you run on your system use dongles, do not delete these drivers. For more information, see “Troubleshooting an Installation That Uses Dongles” on page 4-6.

Installing Additional Products

When you order additional products, The MathWorks sends you a new Personal License Password (PLP). Your PLP identifies all the products you are licensed to install.

To install additional products:

1. Shut down MATLAB.
2. Insert the Release 12 CD into your CD-ROM drive, or double-click on the file you downloaded from the MathWorks Web site. The MathWorks Installer program starts automatically. Follow the instructions on the installer dialog boxes, detailed in "Standard Installation Procedure" on page 1-6
3. In the **Product List** dialog box:
   a. Specify your current MATLAB installation directory as the installation directory.
   b. Deselect all but the product (or products) you want to add. By default, the installer lists *all* the products you are licensed to install, preselected for installation, not just the new products.
4. When the installation program is finished, perform any configuration required by the product you purchased.

2

Concurrent License Installation Procedure

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Start Here

In a concurrent installation, The MathWorks uses a license manager program called FLEXlm (a product of GLOBEtrotter Software, Inc.) to control access to its products. To set up a concurrent installation, you must install the license manager as well as the MathWorks products you purchased. You use the MathWorks Installer to perform both installations.

This chapter describes:

- How to set up a concurrent installation. This section describes how you determine on which systems you will install the license manager and on which systems you will install the Mathworks products.
- The concurrent installation procedure

For information about starting MATLAB and other tasks you can perform after a successful installation, see “After You Install” on page 1-13.

Note Using the installer you can set up a concurrent installation with little knowledge of license management software, even if you own other products that use FLEXlm for license management. However, if you want to integrate the MathWorks products into an already established license management scheme, you may need a more thorough understanding of product licensing. Chapter 3, “License Management” provides an overview of how The MathWorks uses FLEXlm. For more detailed information about licensing, read the *FLEXlm End User Manual*, which is included in your MATLAB installation in PDF format (`$MATLAB\flexlm\enduser.pdf`).

Setting Up a Concurrent Installation

This section summarizes the steps required to set up a MATLAB concurrent installation in your network. You must perform these steps in the order specified:

1. Have your concurrent PLP handy and put a copy of your License File in a temporary directory on the system on which you intend to run your license manager. You provided The MathWorks with the Host ID of this system, referred to in this section as your *license server*, when you made your purchase. See "Concurrent Licensing" on page 2-4 for more information about License Files.

2. Install the license manager (FLEXlm) on your license server. You must perform this installation first because the installer performs some processing to the License File that is required for subsequent MATLAB client installations. You only need to install the license manager once in a concurrent installation.

   If your license server is a PC, follow the instructions in "Concurrent Installation Procedure" on page 2-7, making sure to select the license manager in the **Product List** dialog box. Windows 95 or Windows 98 systems are not recommended for use as license servers.

   If your license server is a UNIX system, follow the instructions in the *Installation Guide for UNIX*. A UNIX license server can serve PC clients.

3. Install MATLAB. The number of MATLAB installations you must perform depends on the configuration of your concurrent installation.

   a. In a *local client access* configuration, you install MATLAB on each client system. When users on client systems start MATLAB, it contacts the license manager over the network to check out a license key.

   b. In a *remote client access* configuration, you only install MATLAB once, on a central file server. Users on client systems access MATLAB over the network. In remote client installations, it can be helpful to give clients a script that sets up a short cut to the network copy of MATLAB and specifies a default startup directory for MATLAB.

Concurrent Licensing

When you purchase a concurrent license, The MathWorks sends you two types of licensing information in an e-mail or fax:

- "Personal License Password" on page 2-4
- "License File" on page 2-4

Your PLP identifies the products you are licensed to *install*. Your License File identifies the products you can *run*.

Personal License Password

A PLP is a series of five-digit numbers preceded by a two-digit product release code.

```
12-12345-12345-12345-12345...
```

If you did not receive your PLP, you can obtain one during the installation procedure by clicking the **Get my PLP** button on the **Personal License Password** dialog box. For information about other options, see "Obtaining Your Concurrent License Information" on page 2-6

License File

A License File is a specially formatted ASCII text file that contains encrypted product passcodes for each product you are licensed to run. Each product passcode identifies the number of *keys* available for each product. The license manager grants or denies access to a product, depending on the availability of the license keys associated with each product at any given moment.

The MathWorks includes information in your License File that identifies the system on which you intend to run the license manager. You had to identify this system, your *license server*, when you made your purchase. The MathWorks needs the Host ID of your license server when it creates your License File.

Figure 2-1 is a sample of a License File sent by The MathWorks. Each line in the License File that begins with the keyword `INCREMENT` identifies a product you purchased. The lines that begin with a pound sign (#) are comments. The license server identification information is included as a comment in the License File. A backslash character at the end of a line indicates that the line

continues onto the next line. (For more detailed information about License Files, see Chapter 3, “License Management.”)

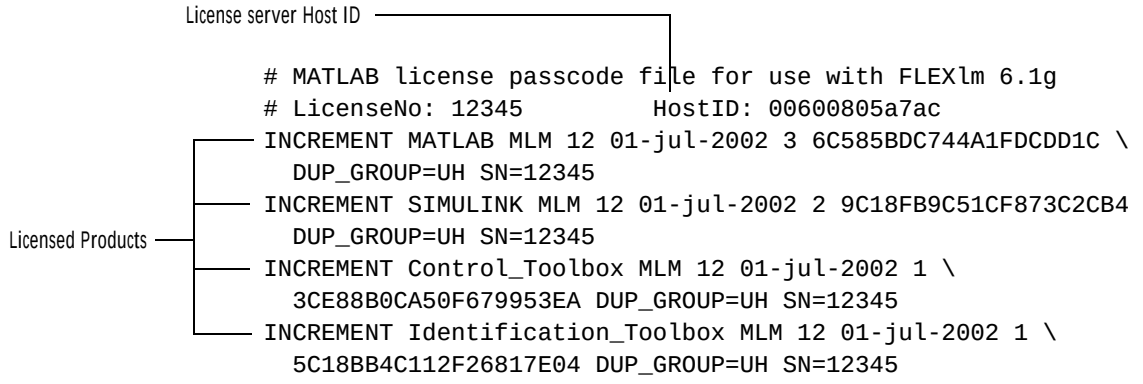


Figure 2-1: Sample License File

Creating Your License File

You must create a License File from the license e-mail your received from The MathWorks. Open a text file, using a text editor, and copy the section of the message marked by the `BEGIN` and `END` lines into a text file. Name the file `license.dat` and store it in a temporary directory, such as `C:\TEMP`.

If you received your license information in a fax, you must create a License File. Open a text file, using a text editor, and type in the license information exactly as it appears in the fax. Take care to preserve all spaces and line breaks.

Note The MathWorks recommends that you do not edit your licensing information. Any changes you make may invalidate your License File.

Obtaining Your Concurrent License Information

If you did not receive your PLP and License File, you can obtain them during the installation procedure by clicking on the **Get my PLP** button on the **Personal License Password** dialog box and the **Get my License File** on the **License File Path** dialog box. You can also obtain them by contacting the MathWorks via:

- The Web at `www.mathworks.com/mla`. Log in to MATLAB Access using your last name and Access number. MATLAB Access membership is free of charge and available to all customers. The primary contact on each license is automatically enrolled in MATLAB Access. Your Access number is sent via e-mail.
- E-mail at `service@mathworks.com`.
- Telephone at 508-647-7000; ask for Customer Service.
- Fax at 508-647-7001.

When requesting your license information, please have ready, or include in your e-mail or fax, these items:

- Your License Number.
  - **a** If you have not previously installed MATLAB at your site, you can find your License Number on the upper right-hand corner of the packing slip. Customers outside North America may obtain this information from their local distributor.
  - **b** If you are updating an existing MATLAB installation and MATLAB is running, type `license` or `ver` at the MATLAB prompt.
- Your e-mail address (if you have one).
- The Host ID of the server on which you will run the license manager. On Windows NT and Windows 2000 systems, use the Ethernet address or IP address as the Host ID. To get this information, enter `ipconfig` in a command prompt window.

Concurrent Installation Procedure

This section describes how to install MATLAB and the license manager in a concurrent installation. You can use this procedure to:

- Install only the license manager on a PC license server
- Install both the license manager and MATLAB on a PC license server (remote client access configuration)
- Install only MATLAB on a PC (local client access configuration)

If your concurrent installation uses a UNIX system as a license server, see the *Installation Guide for UNIX* for instructions on installing the license manager on a UNIX system.

Before You Install

Before you run the installation program:

- Turn off virus checking software.
- Exit any programs you may have running, especially existing copies of MATLAB.
- Make sure your system satisfies the requirements of the software you intend to install. For more information, see "System Requirements" on page 1-4.
- Shut down the FLEXlm license manager, if it's running. (See "Starting and Stopping the License Manager" on page 3-12 for instructions.)

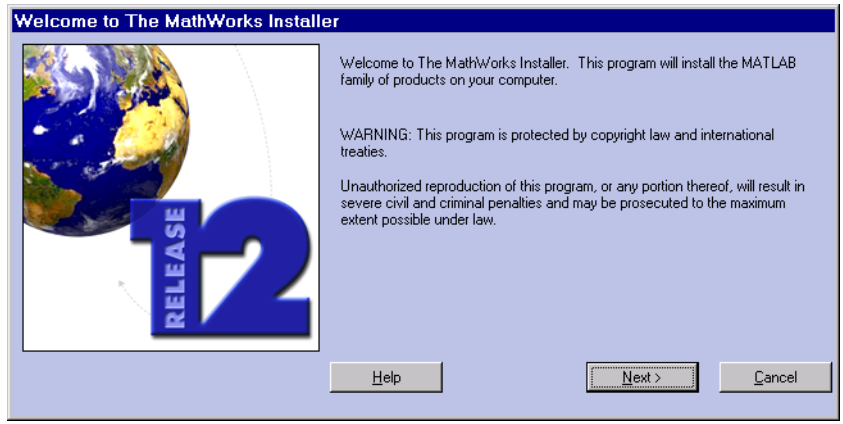
Note To install MATLAB on a Microsoft Windows NT or Windows 2000 system, you must have administrator privileges. Windows 95 or Windows 98 systems are not recommended as license servers.

If you encounter any trouble during installation, see Chapter 4, "Troubleshooting a PC Installation" for answers to some common installation problems.

Installation Instructions

To install MATLAB or the license manager on a PC, follow these instructions:

1 Insert the MathWorks product CD into the CD-ROM drive or double-click on the installer file you downloaded from the MathWorks Web site. The MathWorks Installer starts automatically, displaying the **Welcome to the MathWorks Installer** dialog box.

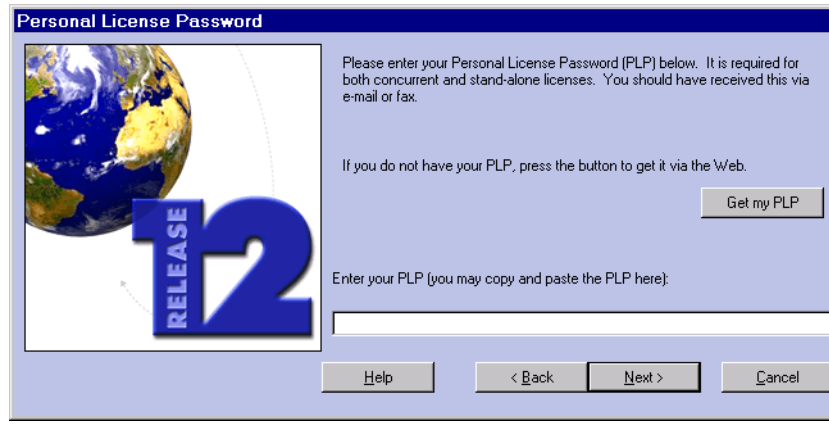


If the installer does not start, open a Windows Explorer window, click on your CD-ROM drive, and double-click the `setup.exe` program in the top level directory.

Note The MathWorks Installer requires the Microsoft Java Virtual Machine (JVM). If your system does not have the required version of the JVM, the installer prompts you to install it. When the JVM installation is complete, you must reboot your system. If you leave the MathWorks product CD in your CD-ROM drive during the JVM installation, the MATLAB installation resumes automatically.

---

2 Enter your Personal License Password (PLP) in the **Personal License Password** dialog box and click **Next**. To avoid typing errors, copy the PLP from the license e-mail and paste it into this dialog box, using **Ctrl+V**. In concurrent configurations where you will perform multiple installations of MATLAB, use the same PLP for each installation.



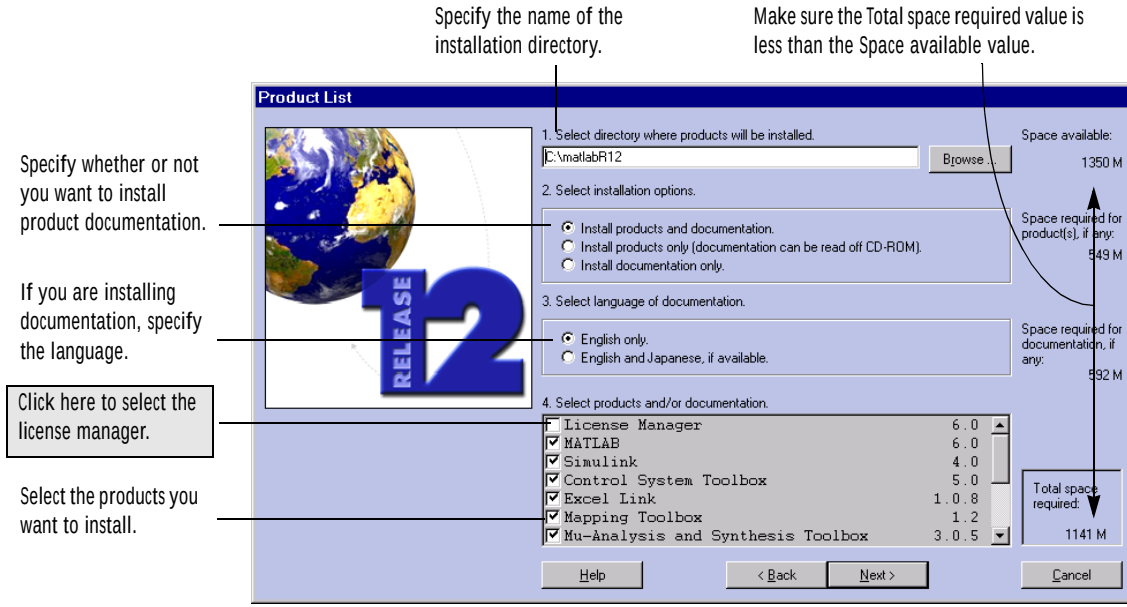
Note Do not confuse your PLP with your License Number. A PLP is a series of five-digit numbers prefixed with a two-digit release code.

3 Review the software licensing agreement and, if you agree with the terms, click **Yes**. After installation, you can view the license agreement in the file `license.txt` located in the top level of your MATLAB installation directory.

4 Enter your name and your company name in the **Customer Information** dialog box and click **Next**.

5 Select the products you want to install and the directory in which you want to install them in the **Product List** dialog box and click **Next**. (Default values are displayed.)

Note To install the license manager, you must select it in the list of products by clicking in the box next to its name. By default, the license manager is not preselected for installation. If you only want to install the license manager, deselect all the other products in the product list.



Click **Next** to install all the products and documentation you are licensed to install into the default directory (`C:\matlabR12`). If you want to specify a different installation directory, note the following:

- Install MATLAB in a new directory, even if you are upgrading a previously installed version of MATLAB.
- Do not use the word “private” as the installation directory name.

- Do not use a directory name that contains spaces or that starts with an at (@) sign.

If the directory that you specify does not exist, the installer creates it.

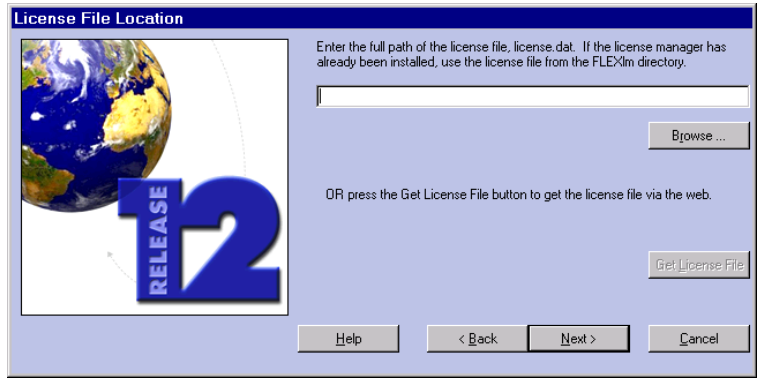
Selecting Products. If you do not want to install a particular product, deselect it in the list by clicking on the check mark next to its name. If you deselect a component now, you can always install it later. See "Installing Additional Products" on page 1-19 for more information.

Installing Documentation. If you are installing the documentation, the installer prompts you to insert the documentation CD into your CD-ROM drive to complete the installation. If you plan to view the documentation from the CD or install the documentation in a directory other than the MATLAB installation directory, choose the product-only option. If you change your mind, you can always install the documentation later.

Note The installer does not install the PDF version of the documentation. The PDF documentation is available on the CD or at the MathWorks Web site and is accessible through the Help browser.

---

6 In the **License File Path** dialog box, specify the location of your License File.



The location you enter here depends on the type of installation you are performing:

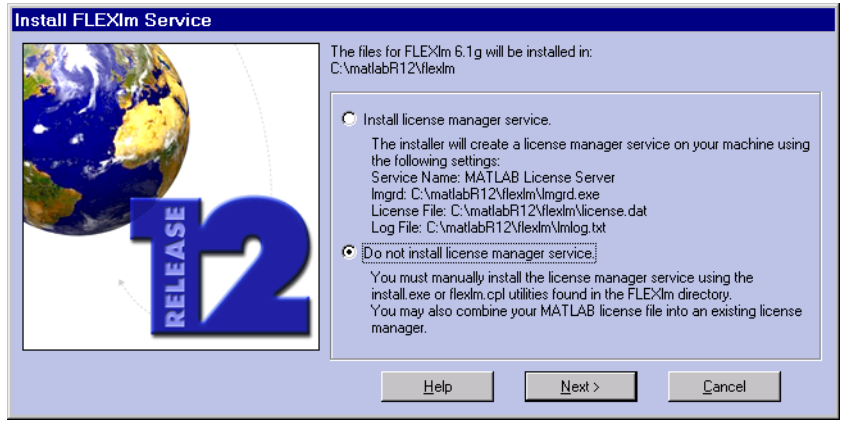
a If you are installing the license manager, specify the location of the License File you created from your license e-mail. This is typically a temporary directory, such as `C:\TEMP`. See "Creating Your License File" on page 2-5 for more information.

b If this is a MATLAB client installation and you are not installing the license manager, specify the location of the *processed* License File, created by the installer during the license manager installation. (Processed license files contain the `SERVER` line. See "License File" in Chapter 3 for more information.)

The following table lists the location of the processed License Files on PCs and UNIX systems.

Platform	Location of Processed License File
PC	`$MATLAB\flexlm`
UNIX	`$MATLAB/etc` To use a License File created on a UNIX system on a PC, you must strip out the UNIX line-ending characters. For example, you can use the `unix2dos` utility on Sun systems to perform this function.

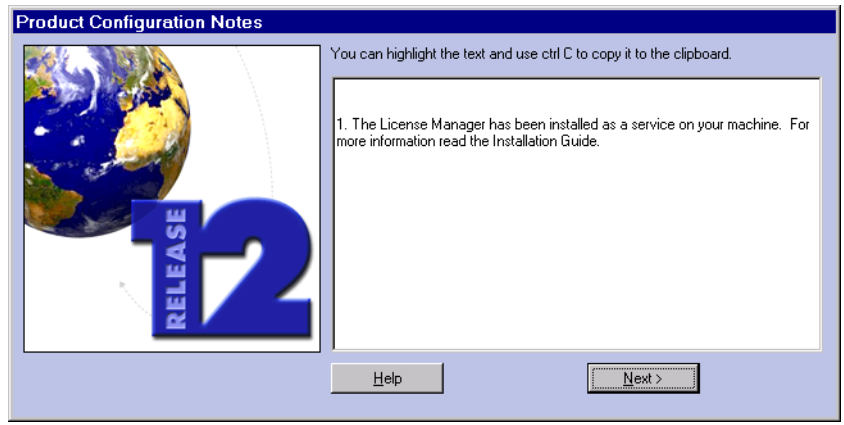
7 If you are installing the license manager on a Windows NT system, the installer displays the **Install FLEXlm Service** dialog box. (On Windows 95 and 98 systems, the top option is disabled because these platforms do not support services.)



Installing the license manager as a service provides automatic startup at system boot time and centralizes administration of the license manager through the **Services** control panel. The license manager appears as the **MATLAB License Server** in these displays.

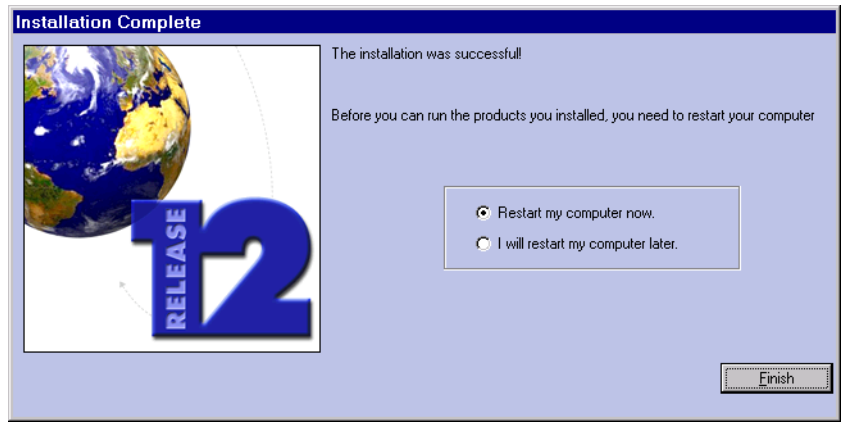
When you make your choice and click **Next,** the installer starts copying files into your installation directory. The installer indicates the progress of the installation in the **Install Status** window.

8 Depending on which products you selected, the installer may display a dialog box containing product-specific configuration information such as the following.



You can copy information from this dialog box, such as configuration commands, for use later when you start MATLAB. See “Configuring Certain Release 12 Products” on page 1-14 for more information.

9 When the installer finishes, it displays the **Installation Complete** dialog box.



If you installed the license manager as a service, The MathWorks recommends that you restart your computer now. The license manager starts automatically when you restart your computer and the license manager must be running to start MATLAB. (For more information, see "Starting and Stopping the License Manager" on page 3-12.)

On Windows 2000 systems, if you do not start MATLAB while you have administrator privileges, users without administrator privileges will get a warning message each time they start MATLAB.

Note If you have trouble starting MATLAB on a client system, remember that *the license manager must be running on the license server before you can run MATLAB on a client*. See Chapter 4, "Troubleshooting a PC Installation" for more information.

If you performed a client installation, the **Installation Complete** dialog box offers you the choice of starting MATLAB. The MathWorks recommends that you start MATLAB and run one of the demonstration programs to verify your installation.

For information about setting up MATLAB after an installation, see "After You Install" on page 1-13.

3

License Management

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The License Management Daemons 3-3
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Overview

Note The information in this section pertains to concurrent installations only. You do not need to read this section if you are performing a standard or group installation.

Using the MathWorks Installer, and following the instructions in Chapter 2, "Concurrent License Installation Procedure" you can set up a concurrent installation with little knowledge of license management. However, if you want to integrate MATLAB into an existing FLEXlm licensing scheme, you may require a more thorough understanding of license management.

This section describes

- The important licensing components, such as files and environment variables, that are used by FLEXlm
- How to perform common license management tasks, including monitoring license activity

For more detailed information about FLEXlm and license management, see the *FLEXlm End User Manual*, available in PDF format in the `$MATLAB\flexlm` directory, where `$MATLAB` is your installation directory.

Licensing Architecture

In a concurrent installation, The MathWorks uses a license manager program, called FLEXlm (a product of GLOBEtrotter Software, Inc.), to control access to the software. This section describes:

- The license management daemons
- The License File format and its processing by the installer
- How to set up a License File when MATLAB shares a license manager with other applications
- Running MATLAB with other FLEXlm applications
- Important license management files

Throughout this section, `$MATLAB` refers to your MATLAB installation directory.

The License Management Daemons

FLEXlm uses a group of processes, called daemons, running on a central server, to control access to software applications. In this section, this system is referred to as your license server.

The main daemon is the license manager daemon (`lmgrd.exe`). This daemon is responsible for managing the initial communication between the licensed application and the vendor daemons associated with each application.

Every vendor that uses FLEXlm to manage the licensing of its products must supply a vendor daemon. The vendor daemon is responsible for keeping track of how many license keys are available for a particular application and for granting or denying access to the application, depending on the current usage of these license keys. The MathWorks vendor daemon is named `mlm.exe`.

When users start applications that use FLEX lm license management, the applications contact the license manager daemon running on the license server, requesting permission to run the application. The license manager daemon forwards this request to the vendor daemon associated with the application that grants or denies the request.

License File

When you purchase MATLAB or other products, the MathWorks sends you the licensing information you need to be able to run the products in a concurrent configuration. You must create a License File on your hard disk that contains this information, named `license.dat`. You can create this file in any directory on your system. For more information about creating a License File, see "Creating Your License File" on page 2-5.

Both the client applications and the daemons use the License File. The daemons use it to determine how many keys are available for each licensed product. The clients use the License File to get the Host ID of the license server.

The following is a sample of a License File sent by The MathWorks.

```
# MATLAB license passcode file for use with FLEXlm 6.1g
# LicenseNo: 12345         HostID: 00600835a7ac
INCREMENT MATLAB MLM 12 01-jul-2002 3 6C585BDC74FA1DDCDD1C \
  DUP_GROUP=UH SN=12345
INCREMENT SIMULINK MLM 12 01-jul-2002 2 9C18FB9CF1CA873C2CB4 \
  DUP_GROUP=UH SN=12345
INCREMENT Control_Toolbox MLM 12 01-jul-2002 1 \
  3CE88B0CAF04679953EA DUP_GROUP=UH SN=12345
INCREMENT Identification_Toolbox MLM 12 01-jul-2002 1 \
  5C18BB4C1F2326817E04 DUP_GROUP=UH SN=12345
```

License Files contain one or more `INCREMENT` lines that itemize the products you are licensed to use. Each `INCREMENT` line has this format. (The `INCREMENT` lines in your License File may not include every element.)

```
INCREMENT product vendor-daemon release-num expir-date num-users
     encrypted-passcode group-identifier serial_num
```

Note In previous releases, The MathWorks used `FEATURE` lines to encode license passcode information in License Files. With this release, license passcodes are encoded in `INCREMENT` lines. `INCREMENT` lines perform the same function as `FEATURE` lines.

Understanding License File Processing

When you install the license manager as part of a concurrent installation, the installer processes your License File, adding information about the location of the license manager server and daemon. After processing the file, the installer puts a copy of the License File in the `$MATLAB\flexlm` directory.

The following is a sample of a processed License File. Note the addition of the `SERVER` and `DAEMON` lines.

```
SERVER smithj ID=00600835a7ac 27000
DAEMON MLM C:\matlabR12\flexlm\mlm.exe
# MATLAB license passcode file for use with FLEXlm 6.1g
# LicenseNo: 12345         HostID: 00600835a7ac
INCREMENT MATLAB MLM 12 01-jul-2002 3 6C585BDC74FA1DDCDD1C \
  DUP_GROUP=UH SN=12345
INCREMENT SIMULINK MLM 12 01-jul-2002 2 9C18FB9CF1CA873C2CB4 \
  DUP_GROUP=UH SN=12345
INCREMENT Control_Toolbox MLM 12 01-jul-2002 1 \
  3CE88B0CAF04679953EA DUP_GROUP=UH SN=12345
INCREMENT Identification_Toolbox MLM 12 01-jul-2002 1 \
  5C18BB4C1F2326817E04 DUP_GROUP=UH SN=12345
```

The `SERVER` line identifies the license manager daemon, using the format

```
SERVER hostname HostID TCP_PortNumber
```

Note that the `HostID` in the `SERVER` line must match the `HostID` in the commented section of the License File.

In the example above, the host name is `smithj`, the Host ID is `00600835a7ac`, and the port number is `27000`. The TCP port number identifies the port to use for communication with the daemons. Do not change this number unless you know it conflicts with other software. You can use any port number; however, to run the daemons from a nonroot account, the port number must be greater than 1024.

The `DAEMON` line defines the mapping of the MathWorks vendor daemon symbol, `MLM`, with the fully specified path to the daemon executable.

License File Processing on Client Systems

In client installations in concurrent configurations, you specify the name of the processed License File in the **License File Path** dialog box during the installation procedure. The installer deletes all the `INCREMENT` lines in the License File and replaces them with a single line: `USE_SERVER`.

After a MATLAB client installation is complete, the installer puts the processed License File (`license.dat`) in the `$MATLAB\bin\win32` directory.

Running MATLAB with Other FLEXlm Applications

If you have another application that uses FLEXlm for license management, you can share a single license manager, or run separate license managers either on the same or different hosts.

Sharing a Single License Manager

To share a license manager, combine the `DAEMON` and `INCREMENT` lines from both License Files into a single License File. Use only one of the `SERVER` lines and install the license manager on that host. If MATLAB and the other application are using different versions of the FLEXlm software, run the newer version of the license server.

For further information, see the GLOBEtrotter Web page at `www.globetrotter.com` or the *FLEXlm End User Manual*, available in PDF form in the `$MATLAB\flexlm` directory.

Running Separate License Managers

To run separate license managers, use separate License Files. If you are running the license managers on the same host, be sure to use a different TCP port number on the `SERVER` line in each License File.

Important License Management Files

This table summarizes all the important filenames involved in license management.

Component	Name and Location
FLEXlm documentation	`$MATLAB\flexlm\enduser.pdf`
License File	`$MATLAB\flexlm\license.dat` (After being processed by the installer.)
License management tools	`$MATLAB\flexlm\lmutil.exe`
License management tools control panel	`$MATLAB\flexlm\flexlm.cpl`
License manager daemon	`$MATLAB\flexlm\lmgrd.exe`
License manager log file	`$MATLAB\flexlm\lmlog.txt`
Vendor daemon	`$MATLAB\flexlm\mlm.exe`

Performing Common License Management Tasks

MATLAB concurrent installations include a set of license management tools provided by FLEXlm. Using these tools you can:

- Monitor the status of all network licensing activities
- Diagnose license key problems
- Start up and shut down all license daemons, both the license manager (`lmgrd.exe`) and all vendor daemons on the license server node
- Cause the license manager daemon to reread the License File and start any new vendor daemons
- Determine the Host ID of a system
- Switch the report log file
- Determine the FLEXlm version of a library or binary file

You can access these tools by using:

- The command line (`lmutil.exe`)
- A GUI (`lmtools.exe`)
- A control panel interface (`flexlm.cpl`)

The following sections describe how to use each method.

Note You must run these tools on the system on which the license manager is running.

Using the Command Line

All the FLEXlm license management tools are packaged into a single executable called `lmutil.exe`. The installer puts this program in the `$MATLAB\flexlm` directory.

You invoke each separate tool using the format

```
lmutil command
```

where `command` is the name of the individual tool.

For example, to monitor the status of network license activity, you use the `lmstat` tool.

Note In this example, note the use of the `-c` flag to specify the location of the License File. You must specify this flag with every tool invoked through `lmutil.exe`.

```
lmutil lmstat -a -c C:\matlabR12\flexlm\license.dat

lmutil - Copywright (C) 1989-1999 Globetrotter Software, Inc.
Flexible License Manager status on Friday 11/1/2000 15:17

License server status: 27000@smithj
    License File(s) on smithj: C:\matlabR12\flexlm\license.dat:

smithj: license server UP (MASTER) v.6.1

Vendor daemon status (on smithj):
    MLM: UP v6.1

Feature usage info:

Users of MATLAB: (Total of 1 licenses available)
  "MATLAB" v12, vendor: MLM
  floating license
  jsmith smithj smithj (v12)(smithj/27000 103),start Fri 11/15.07

Users of SIMULINK: (Total of 1 licenses available)

Users of Control_Toolbox: (Total of 1 licenses available)

Users of Identification_Toolbox: (Total of 1 licenses available)
```

To view a list of all the tools available through `lmutil.exe`, open a **Command Prompt** window, go to the `$MATLAB\FLEXLM` directory and type

```
lmutil
```

The following table lists the most useful tools available through `lmutil` in alphabetical order.

Utility	Description
`lmdiag`	Diagnose license checkout problems
`lmdown`	Shut down all license daemons (both `lmgrd` and all vendor daemons) on the license server node.
`lmhostid`	Report the Host ID of a system
`lmreread`	Cause the license daemon to reread the License File and start any new vendor daemons
`lmstat`	Display the status of all network licensing activities
`lmswitchr`	Switch the report log file
`lmver`	Determine the FLEXlm version of a library or binary file

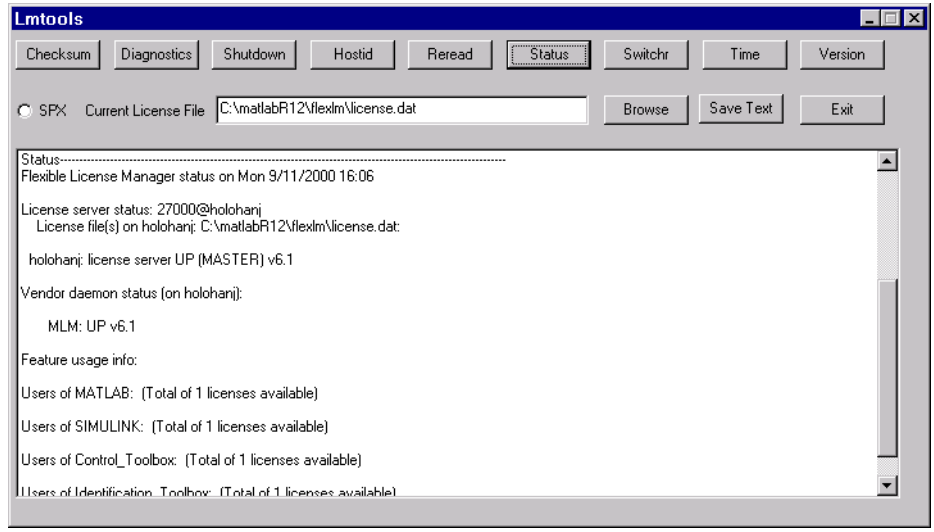
The `lmutil.exe` listing includes brief syntax descriptions for most of the tools. For more detailed information, see the *FLEXlm End User Manual*, included in PDF format in your MATLAB installation (`$MATLAB\flexlm\enduser.pdf`).

Using the lmtools.exe GUI

FLEXlm provides a graphical user interface (GUI) to its license management tools. To invoke this GUI, double-click on the `lmtools.exe` file in the `$MATLAB\flexlm` directory. The GUI uses buttons to provide access to the same set of tools as `lmutil.exe` and displays the results returned in an integrated display window.

For example, to use the `lmtools` GUI to monitor the status of network license activity, click the **Status** button. `lmtools` prompts you to further qualify your status request to a particular daemon or feature. By default, `lmtools` displays the same information as if you had entered `lmutil lmstat -a`.

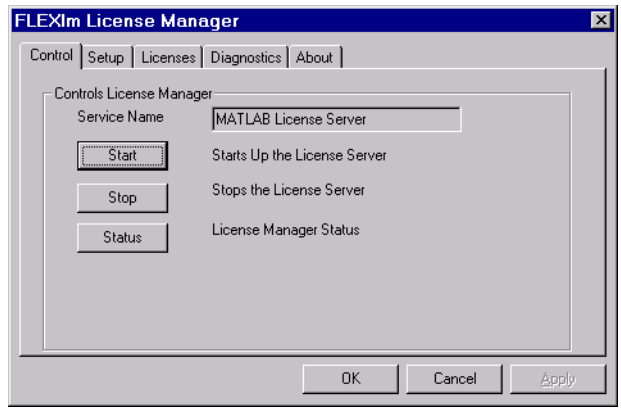
Note When using the `lmtools` GUI, you must specify the location of the License File in the **Current License File** field.



See “Using the Command Line” on page 3-8 for more information about the tools.

Using the FLEXlm Control Panel

FLEXlm provides access to its license management tools in a tabbed, control panel GUI format. To start the control panel, go to the `$MATLAB\flexlm` directory, right-click on the file `flexlm.cpl`, and select **Open with Control Panel**. The control panel provides access to the same set of tools as `lmutil.exe`.



Starting and Stopping the License Manager

On Windows NT, the FLEXlm license manager is installed as a service. There are several ways to start the license manager:

- By rebooting your machine. As a Windows NT service, the license manager gets started automatically at boot time.
- Using the FLEXlm control panel
- Using the Windows NT control panel

Using the Windows NT Control Panel

To start or stop the license manager using the Windows NT Control Panel:

- Select the **Settings** option on the **Start** menu.
- Select **Control Panel** on the **Settings** menu.
- Double-click on **Services**.

In the **Services** dialog box, look for the `MATLAB License Server` service name. The status of the license manager should be `started`, and the startup property should be `automatic`. If the license manager is not active, you can start it by selecting the FLEXlm entry in the dialog box and clicking on the **Start** button.

Running FLEXlm in a Minimized Window

If you run the license manager on a PC running Windows 95, a DOS window appears and remains visible on your screen. You can eliminate this distraction by running the license manager in a minimized DOS window:

1. Go to: `C:\WIN95\Start Menu\Programs\Startup`
2. Right-click on the FLEXlm license manager icon.
3. Select **Properties** from the pop-up menu.
4. Click on the **Shortcut** tab.
5. Choose **Minimized** under the **Run** field.

Managing Your Licenses

If you want to purchase additional products or if your system environment changes and you need to contact us, visit the MathWorks Web site at `www.mathworks.com`.

If you need to:

- Transfer a license to another CPU
- Combine licenses
- Move toolboxes from one license to another
- Change a license registration
- Update your contact information

Go to the MathWorks Web site, click on **Contact Us** and select **Contact Customer Service**. Depending on what you want to do, you will need the License Numbers and names of the products you want to change and the Host ID of your license server.

If you want to purchase additional products, go to the MathWorks Web site and visit our Web store. There you can purchase individual products or product suites, add products to an existing license, purchase subscription service, and many other options.

If you do not have Web access, you can contact The MathWorks via telephone at 508-647-7000.

4

Troubleshooting a PC Installation

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Problems During Installation 4-3

Problems Starting MATLAB 4-4

Troubleshooting an Installation That Uses Dongles . . 4-6

Introduction

This chapter provides information that can help you solve common problems that occur with an individual installation or a concurrent installation.

If you cannot find a description here that matches your problem, try these options:

- Check the release notes that you received with your MATLAB products. This document contains the most up-to-date information about products and installation procedures.
- Use the Installation Troubleshooting Wizard, available in the Support area at the MathWorks Web site, `www.mathworks.com`.

Problems During Installation

This sections provides answers to some problems commonly encountered during installation.

Unable to Start the Installer: Missing Java Class File

The installer requires the Microsoft Java Virtual Machine (JVM). When the installer starts, it checks to make sure you have the version of the JVM that it requires. If it detects that you do not have the version it needs, it prompts you to install it and exits.

Sometimes, your system may have some of the correct JVM files but not all of them. In this case, the installer starts but displays this error message.

```
Unable to start the application - the class file could not be
loaded.
```

To solve this problem, run the Microsoft JVM installer (`msjavx86.exe`) that is included with the MATLAB package in the `\MSutils` subdirectory of the top-level CD directory. If you are running the Japanese version of Microsoft Windows, run `jmsjavx86.exe`.

Invalid Personal License Password

During installation, you must enter your PLP. If your PLP is invalid, you cannot continue with the installation. Check that:

- You entered your PLP in the **Customer Information** dialog box. Do not confuse your License Number with your PLP. A PLP is a series of five-digit numbers, prefixed by a 2-digit release code, such as:

  ```
  12-12345-12345-12345-12345
  ```

- You have a current PLP. PLPs are version-specific. Do not use an old PLP with a new version of MATLAB.

For information about troubleshooting License File issues, see “License File” on page 3-4.

Failure Overwriting an Existing Toolbox

Make sure to exit from any existing versions of MATLAB that may be running before attempting to run the installation procedure.

Problems Starting MATLAB

After a successful installation, you may encounter problems starting MATLAB. Many of these problems have their root in the license manager used by the MathWorks products, FLEXlm. This section describes some of the more common license manager errors with possible solutions. It can also be helpful to view the FLEXlm log file, `lmlog.txt`, in the `$MATLAB\flexlm` directory.

To get more information about a FLEXlm license manager problem, see the *FLEXlm End User Manual*, available in PDF format in the `$MATLAB\flexlm` directory or go to the GLOBEtrotter Software, Inc. Web site, `www.globetrotter.com`. You can also go to the support page on the MathWorks Web site, `www.mathworks.com`, and find information about a particular license manager error by searching the solution database by error number.

License Manager Error -8: Invalid (Inconsistent) License Key

This error message typically indicates that your License File, `$MATLAB\flexlm\license.dat`, has been corrupted. This can happen if the License File was edited or if an e-mail program inserted extraneous tabs or carriage returns in the `INCREMENT` lines.

Check that the contents of your License File matches the License File data sent you by The MathWorks.

License Manager Error -9: Invalid Host

MATLAB locks a license to a particular machine. If you get this error, make sure you are running MATLAB on the same system it was installed on. You can also get this error if you replace your hard drive, change the partition on an existing hard drive, or try to clone a Release 12 installation from one system to another.

Remove the current MATLAB installation, delete the installation directory, and then reinstall MATLAB.

License Manager Error -10: Feature has expired

This error indicates that one or more of your features has expired.

Check the expiration date on each of the `INCREMENT` lines in your License File. If the dates in the license file have already passed, contact the Customer Service department at The MathWorks (through the Web or through e-mail at

service@mathworks.com). When contacting The Mathworks, include your License Number and the Host ID of your license server.

If none of your product licenses has expired, check that your system date and time are correct. On Windows systems:

1. Click on the **Start** menu.
2. Choose **Settings**.
3. Click on **Control Panel**.
4. Choose **Date/Time**.

License Manager Error - 13: No SERVER Line in License File

This indicates that there is no SERVER line in the License File. This line should be added by the installer.

Run the installer again or manually edit the License File, $MATLAB\flexlm\license.dat, adding the SERVER line. See "License File" on page 3-4 for information about the format and contents of the SERVER line.

License Manager Error -15: Cannot connect to license server

This error message can have several causes but the most common cause is that the license manager isn't running.

Verify that both the license manager processes, LMGRD and MLM, are running. You can check this via the Task Manager, which can be accessed by pressing the **Ctrl+Alt+Delete** key sequence. Run these commands on the system on which your license manager is running.

If the license manager isn't running, see "Starting and Stopping the License Manager" on page 3-12 for information about starting it.

Troubleshooting an Installation That Uses Dongles

If your MATLAB installation requires the use of dongles, it can potentially run into conflicts with other applications you may be running that also use dongles. A dongle is a hardware-based security device that attaches to the serial or parallel printer port of a desktop computer. It uses embedded codes and passwords to control access to software applications.

MATLAB requires a certain set of dongle drivers. You cannot use other dongles with MATLAB. Also, if you remove other applications from your computer, these applications may delete the MATLAB dongle drivers as well as their own.

To help troubleshoot problems with dongles, MATLAB includes a utility program call `dongleutil.exe`. The dongle utility program can be used to:

- Determine the version of the currently installed dongle drivers. This information is useful to the MathWorks Technical Support.
- Specify the version of the dongle drivers required by MATLAB.
- Install the dongle drivers required by MATLAB.

The `dongleutil.exe` utility is installed as part of MATLAB in the `$MATLAB\bin\win32` directory, where `$MATLAB` represents your MATLAB installation directory.

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MATLAB Directory Structure

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MATLAB Installation Directory Structure

After installation, your MATLAB installation directory contains:

- A text file, named `license.txt`, which contains the MATLAB software license agreement
- A short-cut to the MATLAB executable
- The subdirectories listed below.

Note Installations may not include all the subdirectories listed.

`\BIN\WIN32`	The MATLAB binary and associated files
`\DEMOS`	MATLAB demonstration programs
`\EXTERN`	Tools for building external interfaces to MATLAB
`\FLEXLM`	The FLEXlm license manager, license management utilities.
`\HELP`	Help system
`\JA`	MATLAB internationalization files
`\JAVA`	MATLAB Java Jar files
`\NOTEBOOK`	MATLAB Notebook
`\SYS`	Tools and operating system libraries that MATLAB depends on
`\TOOLBOX`	The MATLAB toolboxes
`\UNINSTALL`	The MATLAB Uninstaller program
`\WORK`	Default initial current directory

MATLAB Subdirectories

The subdirectories and their contents are listed below.

MATLAB\BIN\WIN32

`MATLAB.EXE`	The MATLAB executable file
`*.DLL, *.EXE, *.BAT`	Miscellaneous files

MATLAB\EXTERN

`\EXAMPLES`	C and Fortran examples of using the Application Program Interface
`\INCLUDE`	Header files for the External Interface Library
`\LIB`	Libraries required for compilers
`\SRC`	C source files for inclusion in MEX building

MATLAB\SYS\GHOSTSCRIPT

`\BIN`	The GhostScript binary
`\FONTS`	GhostScript versions of PostScript fonts
`\PS_FILES`	PostScript initialization and configuration files

MATLAB\SYS\PERL\WIN32

The full ActiveState Perl distribution

MATLAB\TOOLBOX\LOCAL

Local environment M-files

MATLAB\TOOLBOX\MATLAB

\AUDIO	Sound I/O commands
\DATAFUN	Data analysis and Fourier transform functions
\DATATYPES	Data types and structures
\DEMOS	Demonstrations and samples
\ELFUN	Elementary math functions
\ELMAT	Elementary matrices and matrix manipulation
\FUNFUN	Function functions – nonlinear numerical methods
\GENERAL	General purpose commands
\GRAPH2D	Two-dimensional graphs
\GRAPH3D	Three-dimensional graphs
\GRAPHICS	General-purpose graphics commands
\IOFUN	Low-level file I/O functions
\LANG	Language constructs and debugging
\MATFUN	Matrix functions – numerical linear algebra
\OPS	Operators and special characters
\POLYFUN	Polynomial and interpolation functions
\SPARFUN	Sparse matrix functions
\SPECFUN	Specialized math functions
\SPECGRAPH	Specialized graphs
\STRFUN	Character string functions
\TIMEFUN	Time, date, and calendar functions
\UITOOLS	User interface utilities
\VERCTRL	Version control functions
\WINFUN	Window functions

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