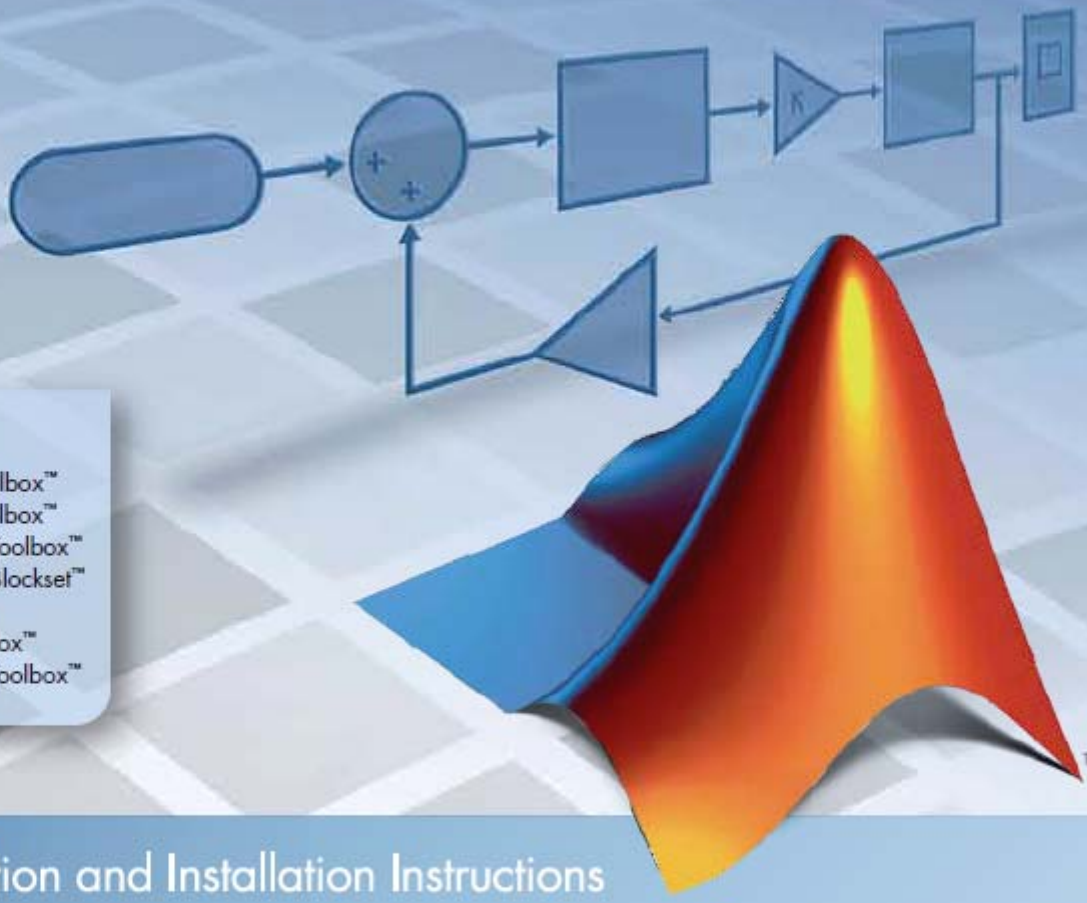
R2009a

MATLAB® & SIMULINK®

STUDENT VERSION



ALSO INCLUDES:

- Symbolic Math Toolbox™
- Control System Toolbox™
- Signal Processing Toolbox™
- Signal Processing Blockset™
- Statistics Toolbox™
- Optimization Toolbox™
- Image Processing Toolbox™

Introduction and Installation Instructions

The MathWorks™

Accelerating the pace of engineering and science

How to Contact The MathWorks

`www.mathworks.com`	Web
`comp.soft-sys.matlab`	Newsgroup

`suggest@mathworks.com`	Product enhancement suggestions
`bugs@mathworks.com`	Bug reports
`doc@mathworks.com`	Documentation error reports
`info@mathworks.com`	Sales, pricing, and general information

508-647-7000 (Phone)

The MathWorks, Inc.
3 Apple Hill Drive
Natick, MA 01760-2098

For localities outside the U.S., see the MathWorks Web site.

MATLAB® & Simulink® Student Version Introduction and Installation Instructions

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March 2008	Online only	Release 2008a
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1

Introducing MATLAB & Simulink Student Version

What Is Student Version?

If you are studying engineering, science, math, or finance, then MATLAB® & Simulink® Student Version is your essential technical computing resource.

Student Version includes full-featured versions of both the MATLAB and Simulink software, used by engineers, scientists, and mathematicians at leading universities, research laboratories, technology companies, and government laboratories around the world. Student Version also includes several other MathWorks™ software add-ons that help you do course work in the areas of signal processing, control design, statistics, optimization, and symbolic computing.

For more information about what Student Version contains and what you can do with it, see "Student Version Overview" on page 1-9.

Student Use Policy

The Student Version License is for use in conjunction with courses offered at degree-granting institutions. The MathWorks offers this license as a special service to the student community and asks your help in seeing that its terms are not abused.

To use this Student License, you must be a student either enrolled in a degree-granting institution or participating in a continuing education program at a degree-granting educational university.

You may not use this Student License at a company or government laboratories. Also, you may not use it if you are an instructor at a university, or for research, commercial, or industrial purposes. In these cases, you can acquire the appropriate professional or academic license by contacting The MathWorks (`www.mathworks.com`).

Quick Start

In this section...

Installing Student Version

MATLAB & Simulink Student Version includes MATLAB, Simulink, and seven other MathWorks products.

Perform the installation by inserting the Student Version DVD and following the instructions in the dialog boxes presented by the Student Version installation program. For additional details, see Chapter 2, "Installation Instructions".

Student Version Activation

An important part of the installation process is activation.

Activation is a secure process that verifies licensed student users. This process validates the serial number and ensures that it is not used on more systems than allowed by The MathWorks, Inc. Software License Agreement. Activation requires you to provide:

- Registration information by creating a MathWorks Account
- The serial number and the Machine ID for the computer on which you are installing the software
- Proof of student status, if you did not provide proof of student status at the time of purchase

The easiest way to activate your software is to use the activation program that starts following product installation. The activation program guides you through the activation process.

For more information about activation, see
www.mathworks.com/academia/student_version/activation.html.

Learning the MATLAB Programming Language

At the heart of the MATLAB technical computing environment is a programming language that you must learn before you can fully exploit its power. You can learn the basics quickly, and mastery will come shortly thereafter. You will be rewarded with highly productive, highly creative computing power that will change the way you work.

What I Want	What I Should Do
Install and activate MATLAB	See Chapter 2, "Installation Instructions"
Start MATLAB	**(Microsoft® Windows® Platforms)** Double-click the `MATLAB` icon on your desktop. **(Apple®Macintosh® Computers)** Double-click the `MATLAB` icon in the MATLAB installation folder (Applications, by default). (**Linux® operating systems**; Linux is a registered trademark of Linus Torvalds.) Enter the `matlab` command at the command prompt.
Learn MATLAB quickly	• View the MATLAB tutorial designed for students at `http://www.mathworks.com/academia/matlabtutorial`. • View the online demo videos, as follows: **1** Start MATLAB. **2** In the MATLAB Help Navigator, click the **Demos** tab. **3** Click **MATLAB**. **4** In the Help browser pane, click the name of a demo video. You also can find a large selection of demos at `www.mathworks.com/demos`. • View the recorded Introduction to MATLAB webinar at `http://www.mathworks.com/company/events/webinars/wbnr30480.html`. You will be asked to create a MathWorks account before proceeding to the webinar. • Read the *MATLAB Getting Started Guide*.

What I Want	What I Should Do
	The most important things to learn are how to enter matrices, how to use the : (colon) operator, and how to invoke functions. After you master the basics, you can access the rest of the documentation through the online help facility (Help).
Print this document	To print this document, you need a PDF reader, such as an Adobe® Acrobat® product. The PDF reader opens a `.pdf` file and reproduces the look and feel of a printed book online. **1** In a Web browser, go to the following URL: `http://www.mathworks.com/access/helpdesk/help/helpdesk.html`. **2** Search for **Student Version** and then click the link for the associated `.pdf` file. The PDF reader opens, displaying this document. **3** In the PDF reader, select **File > Print**. If you are using The Open Group UNIX® platform and cannot open the PDF documentation, check the MATLAB Help preferences. For more information, see "PDF Reader — Specifying Its Location" in the *Desktop Tools and Development Environment* documentation.
Find detailed information about using MATLAB and troubleshooting.	See "Finding Reference Information" on page 1-15 and "Other Resources" on page 1-17.

Learning to Use Simulink Software

You can quickly learn how to use Simulink for modeling, simulating, and analyzing dynamic systems.

What I Want	What I Should Do
Start Simulink	**(Windows Platform)** Double-click the `MATLAB` icon on your desktop. Click the Simulink icon on the toolbar to start Simulink. **(Macintosh computers)** Double-click the `MATLAB` icon in the MATLAB installation folder (Applications, by default). Click the Simulink icon on the toolbar to start Simulink. **(Linux operating systems)** Enter the `matlab` command at the command prompt. Click the Simulink icon on the toolbar.
Learn Simulink quickly	• View the Simulink tutorial designed for students at `http://www.mathworks.com/academia/simulinktutorial`. • View the online demo videos, as follows: **1** Start Simulink. **2** Click **Help > Simulink**. **3** In the Help Navigator, click the **Demos** tab. **4** Click **Simulink**. **5** In the Help browser pane, click the name of a demo video. You also can find a large selection of demos at `www.mathworks.com/demos`. • View a recorded webinar at `http://www.mathworks.com/company/events/webinars`. • Read the *Simulink Getting Started Guide*. You will learn how to model, simulate, and analyze dynamic systems. Because Simulink is graphical and interactive, you can start using Simulink quickly. After you master the basics, you can access the rest of the documentation through the online help facility (Help).

What I Want	What I Should Do
Print this document	To print this document, you need a PDF reader, such as an Adobe Acrobat product. The PDF reader opens a `.pdf` file and reproduces the look and feel of a printed book online. **1** In a Web browser, go to the following URL: `http://www.mathworks.com/access/helpdesk/help/helpdesk.html`. **2** Search for **Student Version** and then click the link for the associated `.pdf` file. The PDF reader opens, displaying this document. **3** In the PDF reader, select **File > Print**. If you are using The Open Group UNIX platform and cannot open the PDF documentation, check the MATLAB Help preferences. See "PDF Reader — Specifying Its Location" in the *Desktop Tools and Development Environment* documentation for more information.

Student Version Overview

In this section...

What You Can Do with Student Version

Student Version includes MATLAB and Simulink software, the premier software packages for technical computing in education and industry. Student Version provides all of the features of the professional version of MATLAB software, with no limitations, and the full functionality of the professional version of Simulink software, with model sizes up to 1000 blocks. Student Version gives you immediate access to high-performance numeric computing, modeling, and simulation power. Student Version also includes several other MathWorks software add-ons in areas such as controls, signal processing, statistics, image processing, and more.

MathWorks software is used in a broad range of industries, including automotive, aerospace, electronics, environmental, telecommunications, computer peripherals, finance, and medicine. More than one million technical professionals rely on MATLAB and Simulink as the fundamental tools for their engineering and scientific work at the world's most innovative

- Technology companies
- Government research laboratories
- Financial institutions
- Universities (more than 3500 universities)

Products Included in Student Version

MATLAB

MATLAB is a high-level language and interactive environment that lets you focus on your course work and applications, rather than on programming details. It enables you to solve many numerical problems in a fraction of the time it takes to write a program in a lower level language such as Java™,

C, C++, or Fortran. You can also use MATLAB to analyze and visualize data using automation capabilities, avoiding the manual repetition common with other products.

Programming and developing algorithms is faster with MATLAB than with traditional languages because MATLAB supports interactive development, without the need to perform low-level administrative tasks, such as declaring variables and allocating memory. Thousands of engineering and mathematical functions are available, eliminating the need to code and test them yourself. At the same time, MATLAB provides all the features of a traditional programming language, including arithmetic operators, flow control, data structures, data types, object-oriented programming (OOP), and debugging features.

MATLAB helps you better understand and apply concepts in a wide range of engineering, science, and mathematics applications, including signal and image processing, communications, control design, test and measurement, financial modeling and analysis, and computational biology. Add-on toolboxes (collections of task- and application-specific MATLAB functions, available separately) extend the MATLAB environment to solve particular classes of problems in these application areas.

With over 1,000,000 users, MATLAB is recognized as a standard tool for increasing the productivity of engineers and scientists. Employers worldwide consistently report the advantages of being MATLAB proficient.

Student Version Differences. There are a few small differences between Student Version and the professional version of MATLAB software:

- The MATLAB prompt in Student Version is

  ```
  EDU>>
  ```

- Printouts contain the footer:

  ```
  Student Version of MATLAB
  ```

Simulink

You can use the Simulink interactive tools for modeling, simulating, and analyzing dynamic systems, including controls, signal processing, communications, and other complex systems. It supports linear and nonlinear

systems, modeled in continuous time, sampled time, or a hybrid of the two. Systems can also be multirate, i.e., have different parts that are sampled or updated at different rates.

Simulink encourages you to try things out. You can easily build models from scratch, or take an existing model and add to it. You have instant access to all the MATLAB analysis tools, so you can take the results and analyze and visualize them. A goal of Simulink is to give you a sense of the fun of modeling and simulation through an environment that encourages you to pose a question, model it, and see what happens.

Simulink is also practical. With thousands of engineers around the world using it to model and solve real problems, knowledge of this tool will serve you well throughout your professional career.

Student Version Differences.

- Accelerator and Rapid-Accelerator simulation modes are not available in Student Version.
- Model reference blocks can be used in Normal mode only.
- Models, including the blocks in referenced models, are limited to 1000 blocks.
- Printouts contain the footer:

  `Student Version of MATLAB.`

Additional Products Included

Student Version includes several other add-on products, that extend MATLAB and Simulink.

Product	Description
Control System Toolbox™	Tools for systematically analyzing, designing, and tuning linear control systems. You can specify a linear model of your system; plot its time and frequency responses to understand how the system behaves; tune the controller parameters using automated and interactive techniques; and verify performance requirements, such as rise time and gain/phase margins.
Signal Processing Toolbox™	Industry-standard algorithms for analog and digital signal processing.
Signal Processing Blockset™	Efficient frame-based processing and Simulink blocks for designing, implementing, and verifying signal processing systems. The blockset enables you to model streaming data and multirate systems in communications, audio/video, digital control, radar/sonar, consumer and medical electronics, and other numerically intensive application areas.
Statistics Toolbox™	Statistical tools to assess and understand numeric data. It includes functions and interactive tools for analyzing historical data, modeling data, simulating systems, developing statistical algorithms, and learning and teaching statistics.
Optimization Toolbox™	Widely used algorithms for standard and large-scale optimization. These algorithms solve constrained and unconstrained continuous and discrete problems. The toolbox includes functions for linear programming, quadratic programming, nonlinear optimization, nonlinear least squares, nonlinear equations, multiobjective optimization, and binary integer programming.

Product	Description
Image Processing Toolbox™	Reference-standard algorithms and graphical tools for image processing, analysis, visualization, and algorithm development. You can restore noisy or degraded images, enhance images for improved intelligibility, extract features, analyze shapes and textures, and register two images.
Symbolic Math Toolbox™	Tools for solving and manipulating symbolic math expressions and performing variable-precision arithmetic. The toolbox contains hundreds of MATLAB symbolic functions that leverage the MuPAD® engine for tasks such as differentiation, integration, simplification, transforms, and equation-solving. Symbolic Math Toolbox also includes the MuPAD language, which is optimized for handling and operating on symbolic math expressions. It provides libraries of MuPAD functions in common mathematical areas, such as calculus and linear algebra, as well as specialized areas, such as number theory and combinatorics. You can extend the built-in functionality by writing custom symbolic functions and libraries in the MuPAD language. All functions can be accessed from within MATLAB or from the MuPAD Notebook Interface, where you can manage and document your symbolic computations

Demos. Student Version includes many product demos. For example, a demo version of Stateflow® software lets you edit and run Simulink models. You can use Stateflow to design and simulate state machines and control logic. However, the demo version does not let you save models.

Obtaining Additional MathWorks Products

Many college courses recommend MATLAB and Simulink products as standard instructional software. In some cases, the courses require particular toolboxes, blocksets, or other products. Toolboxes and blocksets are add-on products that extend MATLAB and Simulink with domain-specific capabilities. Some of these products are included with Student Version, and many more are available separately for use with Student Version. You may purchase and download these additional products at special student prices from the MathWorks Store at `www.mathworks.com/store`.

Some examples of the products you can purchase include:

- Bioinformatics Toolbox™
- Communications Blockset™
- Financial Toolbox™
- Fuzzy Logic Toolbox™
- Neural Network Toolbox™
- Stateflow (A demo version of Stateflow software is included with your Student Version.)

For an up-to-date list of available products and their product dependencies, visit the MathWorks Store.

Note The additional toolboxes and blocksets that are available for use with Student Version have the same functionality as the professional versions (with the exception of SimMechanics™ software, which has a 20-body limitation). However, the student versions of the toolboxes and blocksets will work only with Student Version. Likewise, the professional versions of the toolboxes and blocksets do not work with Student Version.

Finding Reference Information

What I Want	What I Should Do
How to use a specific function	You have several choices, including: • From the command line, use the `help` command (for example, `help print`) to see help text in the Command Window, or the `doc` command (for example, `doc print`) to see the reference page in the Help browser. • Use the online help facility (Help). To access Help, use the command `helpbrowser` or use the **Help** menu. In the Help browser, select a product in the Contents pane, and then **Functions — Alphabetical List**.
Find a function for a specific purpose, but I do not know the function name	You have several choices, including: • In the Help browser, select a product in the Contents pane, and then **Function — By Category**. • Use **Index** or **Search** in the Help browser. • Use `lookfor` (for example, `lookfor inverse`) from the command line.
What functions are available in a general area	Use the Help browser to view **Functions — By Category** for a product or use **Index** or **Search**.
How to use a specific block	In the Help browser, click either a Simulink product or Signal Processing Blockset, and then **Blocks — Alphabetical List**.

What I Want	What I Should Do
Find a block for a specific purpose, but I don't know the block name	You have several choices, including: • In the Help browser, select **Blocks — By Category**. • Use **Index** or **Search** in the Help browser.
What blocks are available in a general area	Use the Help browser to view **Blocks — By Category** for a product or use **Index** or **Search**.
Learn about a specific topic such as sparse matrices, ordinary differential equations, or cell arrays	Use Help to locate the appropriate sections in the documentation for the MATLAB, Simulink products, or for another product included with Student Version (for example, **MATLAB > Mathematics > Sparse Matrices**).

Other Resources

In this section...

MathWorks Web Site

At `www.mathworks.com`, there is information about MathWorks products and how they are used in education and industry, product demos, and books about MATLAB and Simulink software.

Web-Based Documentation

Documentation for all MathWorks software is available from the Support area of the MathWorks Web site. In addition to tutorials and function reference pages, you can find PDF versions of all the manuals.

MathWorks Academia Web Site

At `www.mathworks.com/academia`, you will find resources for students for courses in engineering, mathematics, and science.

Books about Using MATLAB and Simulink Software

At `www.mathworks.com/support/books`, you will find books in many disciplines that use MATLAB and Simulink for examples and assignments.

The MathWorks Store

At `www.mathworks.com/store`, you can purchase add-on products and documentation.

MATLAB Central — File Exchange/Newsgroup Access

At `www.mathworks.com/matlabcentral`, you can access the MATLAB Usenet `comp.soft-sys.matlab` newsgroup, as well as an extensive library of user-contributed files called the MATLAB Central File Exchange. MATLAB

Central is also home to the Link Exchange where you can share your favorite links to various educational, personal, and commercial MATLAB Web sites.

The `comp.soft-sys.matlab` newsgroup is for professionals and students who use MATLAB and have questions or comments about it and its associated software. This is an important resource for posing questions and answering queries from other MATLAB users. MathWorks staff also participates actively in this newsgroup.

Technical Support

At `www.mathworks.com/support`, you can get technical support.

Telephone and e-mail access to our technical support staff is not available for students running Student Version unless you are experiencing difficulty installing or downloading MATLAB or related products. There are numerous other vehicles of technical support that you can use.

If you experience a problem that is unrelated to installing MATLAB or related products, first check the available MathWorks sources for help. If you still cannot resolve your problem, contact your instructor. Your instructor should be able to help you. (Telephone and e-mail technical support is available to registered instructors who have adopted Student Version in their courses.)

2

Installation Instructions

This chapter describes how to install and activate Student Version.

Installing on Microsoft Windows Platforms

In this section...

System Requirements

- PC with Intel® Pentium (Pentium 4 and above), Intel Celeron, Intel Core, Intel Xeon, AMD Athlon™ 64, AMD® Opteron, or AMD Sempron

  Intel Celeron and AMD Athlon 64 must support SSE2 instruction set.
- Microsoft Windows Vista™ (Service Pack 1) or Windows XP (Service Pack 2 or 3)
- 512 MB RAM or higher (1024 MB recommended)
- 660 MB disk space (MATLAB only)
- 16-, 24-, or 32-bit OpenGL® capable graphics adapter

Note For detailed and current information on system requirements, visit `www.mathworks.com/academia/student_version/requirements.html`.

MEX-Files

MEX-files are dynamically linked subroutines that MATLAB can automatically load and execute. They provide a mechanism by which you can call your own C and Fortran subroutines from MATLAB as if they were built-in functions.

If you plan to build your own MEX-files, you need a supported compiler. For the most up-to-date information about compilers, see the support area at the MathWorks Web site (`www.mathworks.com`).

Installing and Activating Student Version

1. Exit any existing copies of MATLAB you have running.

2. Insert the Student Version DVD in your DVD drive. The installation script should launch automatically. If the installation script does not launch in a short time, run `setup.exe` from the DVD.

3. Read the MathWorks Installer dialog box, and then click **Next**.

4. Review the software licensing agreement and, if you agree with the terms, select **Yes** and click **Next**.

5. Select the installation type and click **Next**.

   `Typical installation` installs all products. `Custom installation` gives you control over the installation, such as selecting which products to install. This installation type is intended for advanced users who do not need step-by-step instructions. Therefore, the remainder of these steps provide instructions for a `Typical installation`.

6. Use the **Folder Selection** dialog box to specify the name of the folder into which you want to install MATLAB. You can accept the default installation folder or specify the name of a different installation folder. If the folder does not exist, the installer creates it. To continue with the installation, click **Next**.

7. Use the **Confirmation** dialog box to confirm your installation options. To change a setting, click the **Back** button. To proceed with the installation, click **Install**.

   When the installation successfully completes, the activation process begins by displaying the **Activation Overview** dialog box.

   The **Activation Overview** dialog box outlines the steps for the activation process, as follows.

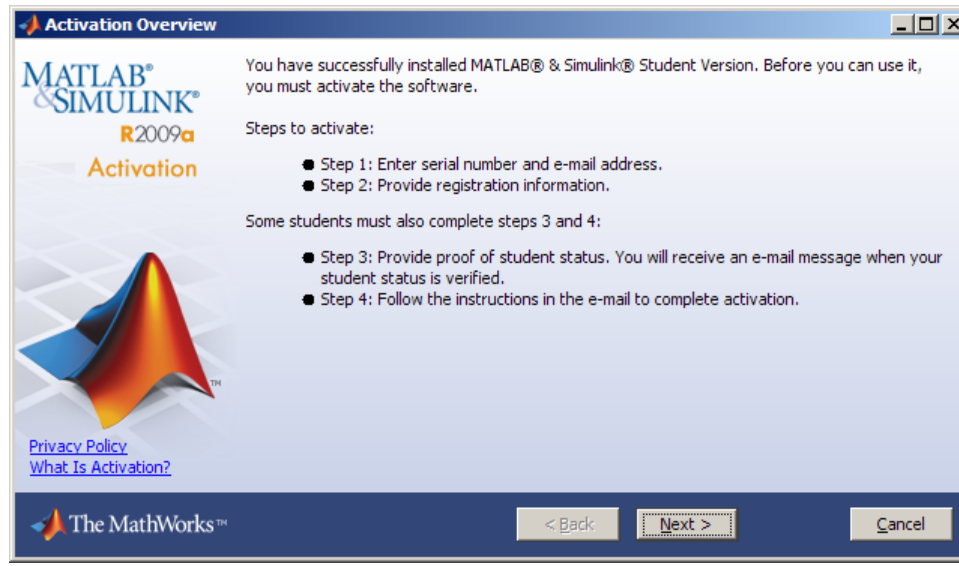
   Step 1. Enter your serial number and e-mail address.

   Step 2. Provide registration information by creating a MathWorks account.

   Some students must also complete Steps 3 and 4.

Step 3. Provide proof of student status.

Step 4. If you receive an e-mail indicating you have been authenticated, follow the instructions in that e-mail to complete the activation.



8 Click **Next**.

The **Student Use Policy** dialog box displays. If you are a student using the software for course work at a school, college, or university, select **Yes** and then click **Next**. Otherwise, select **No**, and then click **Cancel**. You cannot use this software if you do not fit the description presented in this dialog box.

9 Follow the steps through the activation process.

At the completion of the activation process, you can use Student Version.

In certain cases, your software is temporarily activated for 30 days until your proof of student status is verified. In these cases, you are reminded that your activation is temporary and that you need to complete the activation process. After your proof of student status is verified, your activation is complete.

Note If you encounter a problem during the activation process, check www.mathworks.com/academia/student_version/activation.html for more information.

10 To start MATLAB, double-click the MATLAB icon that the installer creates on your desktop.

11 Customize any MATLAB environment options, if desired. For example, to specify welcome messages, default definitions, or any MATLAB expressions that you want executed every time MATLAB is invoked, you must create a file named `startup.m`. For Windows Vista operating system, create `startup.m` in the `Documents\MATLAB` folder. For other supported Windows platforms, create in create `startup.m` in the `My Documents\MATLAB` folder. Every time you start MATLAB, it executes the commands in the `startup.m` file.

12 Perform any additional configuration by typing the appropriate command at the MATLAB command prompt. For example, to configure the MATLAB Notebook, type `notebook -setup`. To configure a compiler to work with the MATLAB External Interface, type `mex -setup`.

For More Information The *Installation Guide for Windows* provides additional installation details.

Installing Additional Products

To purchase additional products, visit the MathWorks Store at `www.mathworks.com/store`. After you purchase a product, the product and its online documentation download to your computer.

When you download a product, you receive an installation program for the product. To install the product and its documentation, run the installation program by double-clicking the installer icon. After you successfully install the product, all of its functionality and documentation are available to you when you start MATLAB.

Installing on Apple Macintosh Computers

In this section...

System Requirements

- Intel processor
- Mac® OS X 10.5 and above
- 512 MB RAM (1024 MB recommended)
- 360 MB disk space (MATLAB only)

Note For detailed and current information on system requirements, visit `www.mathworks.com/academia/student_version/requirements.html`.

MEX-Files

MEX-files are dynamically linked subroutines that MATLAB can automatically load and execute. They provide a mechanism by which you can call your own C and Fortran subroutines from MATLAB as if they were built-in functions.

If you plan to build your own MEX-files, you need a supported compiler. For the most up-to-date information about compilers, see the support area at the MathWorks Web site (`www.mathworks.com`).

Installing and Activating Student Version

Permissions

If you want to install Student Version in a particular directory, you must have the appropriate permissions. For example, to install MATLAB software in the Applications directory, you must have administrator status.

Note The user account you set up when you configured your Mac computer is an administrator account. If you do not know the user name and password for an administrator, check with the person who administers your Macintosh computer.

To create symbolic links in a particular directory, you also need the appropriate permissions. For information on setting permissions (privileges), see the Apple Macintosh computer's Help (press **Command+**? from the desktop).

Installation Procedure

1. Insert the Student Version DVD in the DVD drive. When the DVD icon appears on the desktop, double-click it to display the DVD contents.
2. Double-click the InstallForMacOSX icon to begin the installation.

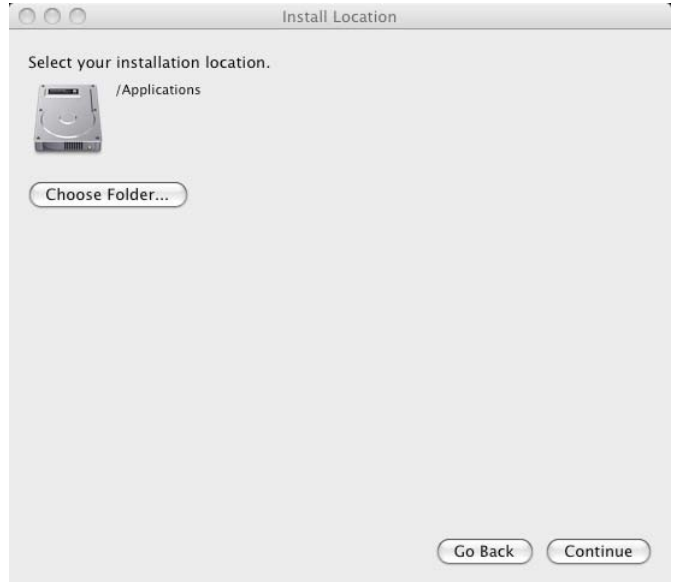
   A dialog box opens.
3. In the dialog box, enter a user name and password for an administrator, and then click **OK**.

4 When the **MathWorks Installer** window appears, review its contents. Click **Continue** to proceed with the installation.

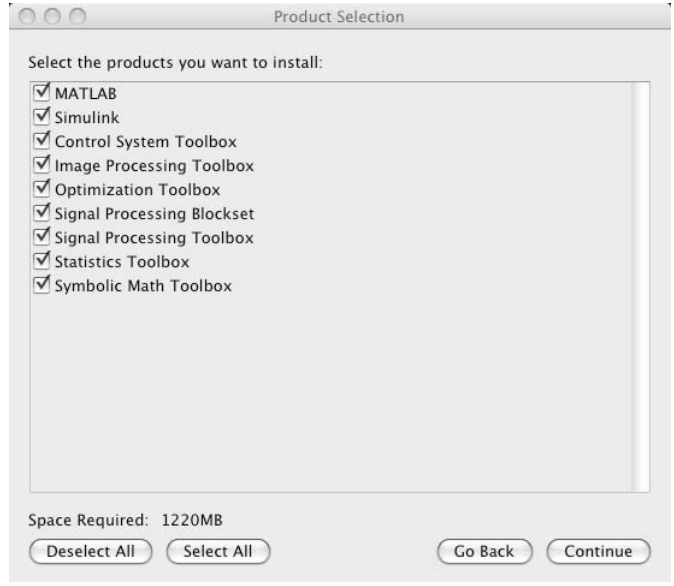
5 The Software License Agreement displays. If you agree to its terms, click **Continue** to continue the installation.

6 Choose your installation location. If you accept the default, the installer puts the `MATLAB_R2009aSV` application in the `Applications` folder on your system disk. To accept this default, click **Continue**. To change the location, click **Choose Folder**, and then navigate to the desired location.

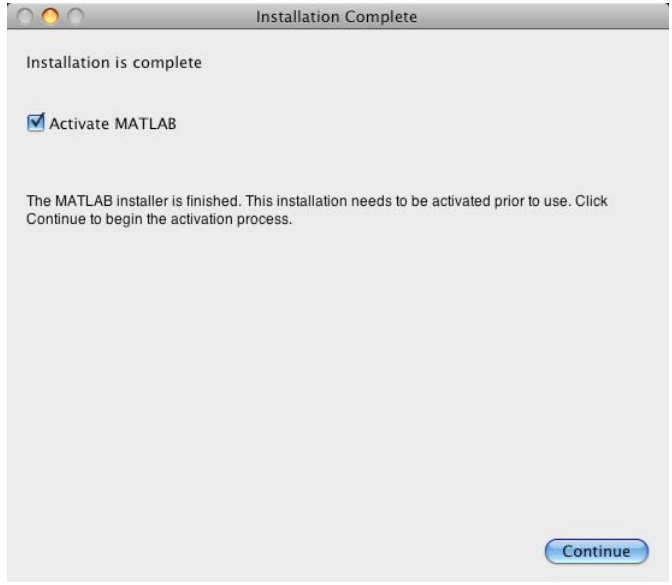
Note Your installation folder name cannot contain spaces, the @ character, the % character, or the $ character. You cannot install into a folder named `private`, but you can have a folder named `private` on the path. To create the installation folder in this location on your system, you must have administrator privileges. For information on setting privileges, see the help for the Macintosh computer (press **Command+?** from the desktop).



7 Select the products you want to install from the list of products, and then click **Continue**.



8 When the installation successfully completes, the installer displays the **Installation Complete** window. Click **Continue** to activate MATLAB.



The **Activation Overview** dialog box opens and lists the steps to activate your Student Version.

You will be prompted either to complete just the first two steps, or to complete all four steps.

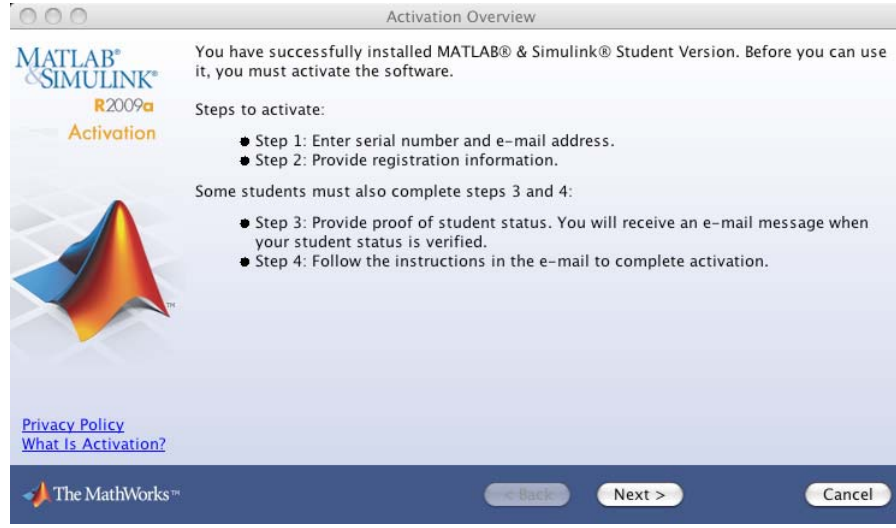
Step 1. Enter your serial number and e-mail address.

Step 2. Provide registration information by creating a MathWorks account.

Some students must also complete Steps 3 and 4.

Step 3. Provide proof of student status.

Step 4. If you receive an e-mail indicating you have been authenticated, follow the instructions in that e-mail to complete the activation.



9 Click **Next**.

The Student Use Policy dialog box displays. If you are a student using the software for course work at a school, college, or university, select **Yes** and then click **Next**. Otherwise, select **No**, and then click **Cancel**. You cannot use this software if you do not fit the description presented in this dialog box.

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At the completion of the activation process, you will be able to use Student Version.

In certain cases, your software will be temporarily activated for 30 days until your proof of student status is verified. In these cases, you will be reminded that your activation is temporary and that you need to complete the activation process. After your proof of student status is verified, your activation is complete.

Note If you encounter a problem during the activation process, check `www.mathworks.com/academia/student_version/activation.html` for more information.

11 Start MATLAB by double-clicking the `MATLAB` icon in the MATLAB installation folder (Applications, by default).

Note The Installation Guide for Mac OS® X provides additional installation information.

Installing Additional Products

To purchase additional products, visit the MathWorks Store at `www.mathworks.com/store`. After you purchase a product, the product and its online documentation are downloaded to your computer.

Documentation for Macintosh Computers

In general, the documentation for MathWorks products does not vary for individual platforms unless the product or feature is available only on a particular platform. When there is a specific difference for the Macintosh computers, the documentation (print or online through the Help browser) calls out the platform differences. If you are using a Macintosh computer, make sure you refer to the documentation for the Open Group UNIX platform.

Installing on Linux Operating System Platforms

In this section...

System Requirements

- PC with Intel Pentium (Pentium 4 and above), Intel Celeron, Intel Core, Intel Xeon, AMD Athlon 64 (must support SSE2 instruction set), AMD Opteron, or AMD Sempron
- Red Hat Enterprise Linux v4 and above, Fedora Core 4 and above, Debian 4.0 and above, Ubuntu 8 and above
- 512 MB RAM or higher (1024 MB recommended)
- 500 MB disk space (MATLAB only)
- 16-, 24-, or 32-bit OpenGL capable graphics adapter

Note For detailed and current information on system requirements, visit `www.mathworks.com/academia/student_version/requirements.html`.

MEX-Files

MEX-files are dynamically linked subroutines that MATLAB can automatically load and execute. They provide a mechanism by which you can call your own C and Fortran subroutines from MATLAB as if they were built-in functions.

If you plan to build your own MEX-files, you need a supported compiler. For the most up-to-date information about compilers, see the support area at the MathWorks Web site (`www.mathworks.com`).

Installing and Activating Student Version

Privileges

On most systems, you need root privileges to perform certain steps in the installation procedure.

Installation Procedure

1. Insert the Student Version DVD in the DVD drive.

   If your DVD drive is not accessible to your operating system, you need to mount the DVD drive on your system. Create a directory to be the mount point for it:

   ```
   $ mkdir /dvd
   ```

   Mount a DVD drive using the command:

   ```
   $ mount /dvd
   ```

   If your system requires that you have root privileges to mount a DVD drive, these commands should work on most systems:

   ```
   $ su root
   # mount -t iso9660 /dev/dvd /dvd
   ```

   To enable nonroot users to mount a DVD drive, include the `exec` option in the entry for DVD drives in your `/etc/fstab` file, as in the following example:

   ```
   /dev/dvd /dvd iso9660 noauto,ro,user,exec 0 0
   ```

   However, this option is often omitted from the `/etc/fstab` file for security reasons.

2. Start the MathWorks Installer by running the install script.

   ```
   /dvd/install_unix.sh
   ```

The MathWorks Installer displays the **MathWorks Installer** dialog box. Read the information, and then click **OK** to proceed with the installation.

Note If you need additional help on any step during this installation process, click the **Help** button at the bottom of the dialog box.

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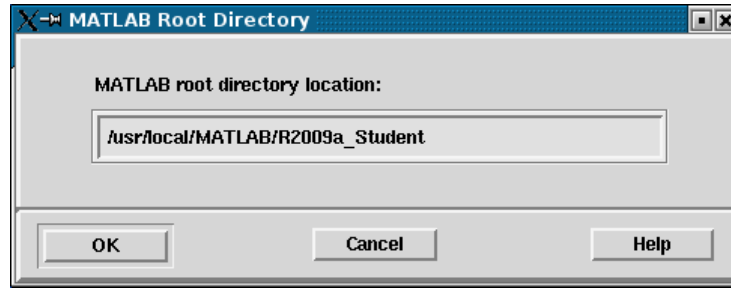
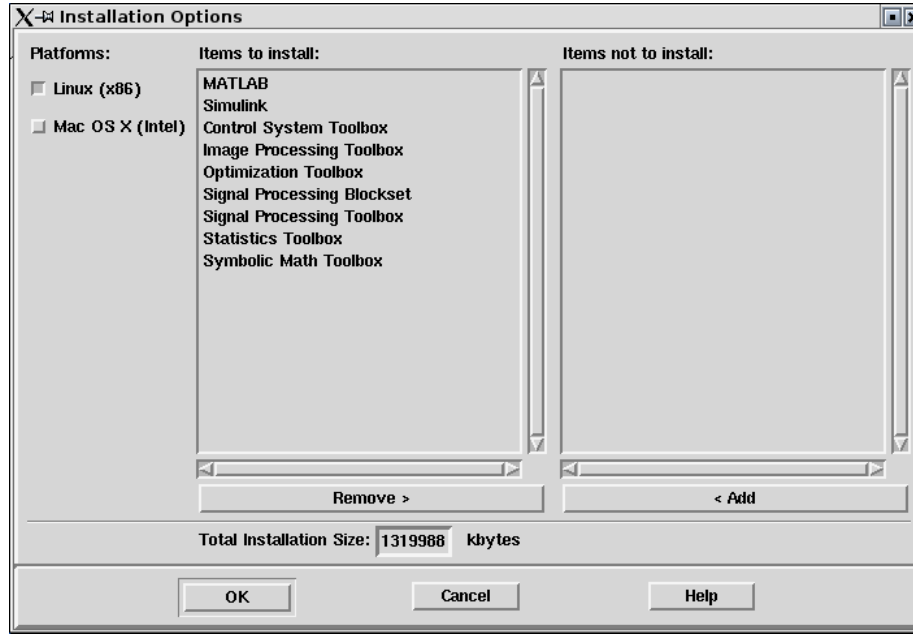
3. The Software License Agreement displays. If you agree to its terms, click **Yes** to continue the installation.

4. Verify the name of the directory in which you want to install MATLAB in the **MATLAB Root Directory** dialog box. You can edit the path name in this dialog box. If the MATLAB root directory is correct, click **OK** to proceed with the installation.



Subsequent instructions in this section refer to this directory as *`matlabroot`*.

5. Select the products you want to install in the **Installation Options** dialog box.

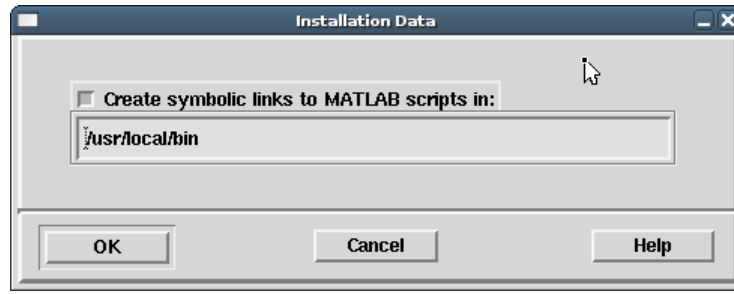


The products you are licensed to install appear in the **Items to install** list box. If you do not want to install a product, select it in the list and click **Remove**. The installer moves the product to the **Items not to install** list.

To install the complete Student Version, keep all the products listed in the **Items to install** list.

After you select the products you want to install, click **OK** to proceed with the installation.

6 Specify in the **Installation Data** dialog box the directory in which you want to install symbolic links to the `matlab` and `mex` scripts. Choose a directory that is common to all users' paths, such as `/usr/local/bin`. You must be logged in as `root` to do this. If you choose not to set up these links, you can still run MATLAB; however, you must specify the full path to the MATLAB startup script. Click **OK** to proceed with the installation.



7 Start the installation by clicking **OK** in the **Begin Installation** dialog box. During the installation, the installer displays information about the status of the installation.

When the installation successfully completes, the Installation Complete dialog box opens.

8 Click **Continue** to begin the activation process.

The **Activation Overview** dialog box displays and describes the steps in the process, as follows:

You will be prompted either to complete just the first two steps, or to complete all four steps.

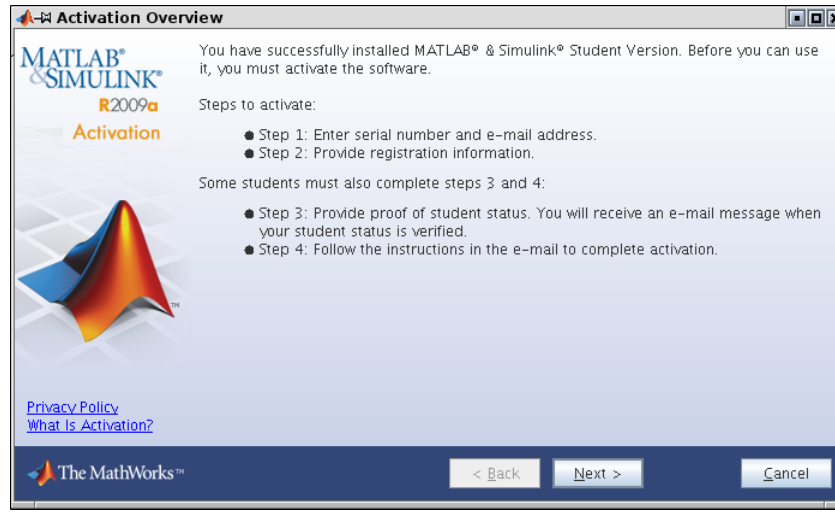
Step 1. Enter your serial number and e-mail address.

Step 2. Provide registration information by creating a MathWorks account.

Some students must also complete Steps 3 and 4.

Step 3. Provide proof of student status.

Step 4. If you receive an e-mail indicating you have been authenticated, follow the instructions in that e-mail to complete the activation.



9 Click **Next**.

The Student Use Policy dialog box displays. If you are a student using the software for course work at a school, college, or university, select **Yes** and then click **Next**. Otherwise, select **No**, and then click **Cancel**. You cannot use this software if you do not fit the description presented in this dialog box.

10 Follow the steps through the activation process.

At the completion of the activation process, you will be able to use Student Version.

In certain cases, your software will be temporarily activated for 30 days until your proof of student status is verified. In these cases, you will be reminded that your activation is temporary and that you need to complete the activation process. After your proof of student status is verified, your activation is complete.

Note If you encounter a problem during the activation process, check `www.mathworks.com/academia/student_version/activation.html` for more information.

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11 Start MATLAB by entering the `matlab` command. If you did not set up symbolic links in a directory on your path, you must provide the full path to the `matlab` command:

```
matlabroot/bin/matlab
```

where *`matlabroot`* represents your MATLAB installation directory.

Installing Additional Products

To purchase additional products, visit the MathWorks Store at `www.mathworks.com/store`. After you purchase a product, the product and its online documentation are downloaded to your computer.

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