MATLAB 5 Late-Breaking News

Getting Started

Installation

Install your copy of MATLAB 5 into an empty directory. Do not install over a previously installed version of MATLAB.

Supported Platforms

MS Windows

MATLAB for Windows is designed to be run in 386-enhanced mode on any IBM, Compaq, or 100 percent compatible system with an Intel (or compatible) processor running Microsoft Windows NT or Windows 95. MATLAB for Windows is a full 32-bit application.

In addition to Microsoft Windows NT or Windows 95, this version of MATLAB requires the following minimum configuration:

- 387 or 487 math coprocessor chip (except 486DX processors, which include this internally)
- Microsoft Windows-supported CD-ROM drive
- Microsoft Windows-supported mouse
- Microsoft Windows-supported monitor
- 8 MB of free space on your hard drive (10 MB for MATLAB with SIMULINK)
- 4 MB of extended memory (8 MB or more is required to use MATLAB color graphics and image processing capabilities)

The following items are strongly recommended

- Additional memory (to bring the total to at least 8 MB)
- 8-bit graphics adaptor and display (for 256 simultaneous colors)
- Microsoft Windows-supported graphics accelerator card
- Microsoft Windows-supported printer
- Microsoft Windows-supported sound card
- Microsoft Windows 6.0 or 7.0 (to use the MATLAB Notebook)
- Microsoft, Borland, or Watcom C compiler (for building MEX-files)

UNIX

Minimum system resources:

- 40 MB disk space
- 16 MB memory
- 64 MB swap space

Other system requirements depend on the particular UNIX platform on which you are running MATLAB.

Sun SPARC (SunOS 4)

- SPARC-based workstation
- SunOS 4.1.4
- Open Windows version 3.0 or X Windows (X11R5)

Sun SPARC (Solaris 2)

- SPARC-based workstation
- Solaris 2.5 or higher (SunOS 5.x)
- X Windows (X11R5)

HP 9000

- HP 9000 PA-RISC workstation
- HP-UX 10.01 or higher
- X Windows (X11R5)

DEC Alpha

- DEC Alpha workstation
- Digital UNIX 4.0 or higher
- DECwindows or X Windows (X11R5)

IBM RS/6000

- IBM RS/6000 workstation
- AIX 4.1
- X Windows (X11R5)

Silicon Graphics (SGI)

- SGI (R4000) MIPS-based workstation
- IRIX 6.2 or higher
- X Windows (X11R5)

Silicon Graphics (SGI64)

- SGI (R8000/R10000) MIPS-based workstation
- IRIX 6.2 or higher
- X Windows (X11R5)

Linux

- 80486 or Pentium PC
- Linux 2.0.18 kernel (Red Hat 4.0 distribution)
- X Windows (X11R6)

Macintosh

Macintosh is distributed on CD-ROM only. MATLAB for the Macintosh is designed to run on:

- Any Power Macintosh
- Any Macintosh equipped with a 68020 or 68030 microprocessor and a 68881 or 68882 math coprocessor
- Any Macintosh equipped with a 68040 microprocessor (the math coprocessor is built in)

MATLAB will not run on a Macintosh with a 68LC040 microprocessor.

In addition, the following system configuration is recommended for this version of MATLAB:

- 26 MB of free space on your hard drive (34 MB for MATLAB with SIMULINK). An additional 60 MB is required for the optional online help system.
- 16 MB memory partition for MATLAB
- CD-ROM drive
- System 7.1 or higher (System 7.5 or higher is preferred)

Help Desk

The MathWorks Help Desk is an enhanced Help facility that provides access to online help topics, online reference materials, electronic documentation, and World Wide Web pages through a Web browser. You do not need to be connected to the Internet to use this facility.

Windows and Macintosh users can access this facility via the **Help** menu or the **?** icon on the Command Window toolbar. Users on all platforms can access this facility via the doc command.

Platform Issues

Currently the Help Desk should be used with Netscape Navigator Release 3.0 or Microsoft Internet Explorer 3.0 (the Help Desk does not work as well with earlier releases of those products).

When invoked from Microsoft Internet Explorer, the index search facility generates HTML output that takes the place of the Help Desk page in the browser's page hierarchy. Consequently, the **Back** button or hyperlinks to the Help Desk will not work as expected. To return to the Help Desk from the index search page, use the **Refresh** button. Also, the search may not work correctly when invoked the first time over a slow network; subsequent searches will work correctly.

Note the JIT compiler must be disabled to run the index search applet under Internet Explorer. To turn off JIT, click the **View** menu and then click **Options**. Select the **Advanced** tab, and then deselect the checkbox labeled **Enable Java JIT Compiler**.

On the 68K Macintosh, the index search facility requires Netscape 3.0. In addition, the index search facility is extremely slow on the 68K Macintosh.

MATLAB Documentation

The MATLAB documentation set has been rewritten, expanded, and divided into several volumes for ease of use. The set currently consists of online help, as well as hypertext-based manuals.

- *Getting Started with MATLAB* explains how to get started with the fundamentals of MATLAB.

- *MATLAB Function Reference* describes all MATLAB mathematical functions and language commands. Type the command doc to access this document online.

- *MATLAB Graphics Reference* provides reference material for all graphics-related commands and functions. Type the command doc to access this document online.

- The *MATLAB Application Program Interface Reference* describes functions used to write C or Fortran programs that interact with MATLAB.

- *MATLAB New Features Guide* introduces the new features of MATLAB 5 and describes how to upgrade MATLAB 4 applications for use with MATLAB 5.

- Online help and demos provide online reference information about MATLAB commands and demonstrate some of MATLAB's features.

Platform-Specific Issues

Microsoft Windows

Printing Under MS-Windows

Before you can print from a Microsoft or Novell NetWare network environment under Windows 95 or NT, you must map the LPT1 port to the printer you want to use.

To map LPT1 on Microsoft networks, issue this command at the system's command prompt:

    net use LPT1: \\server\printer

where *server* is the name of the server sharing the printer and *printer* is the name of the printer.

On Novell NetWare networks, use this command:

    capture l=1 q=printer

where *printer* is the name of the print queue.

If you are using a Microsoft network, you can map LPT1, or you can edit the printopt function to change the definition of pcmd to:

    COPY /B %s \\server\printer:

where *server* is the name of the server sharing the printer and *printer* is the name of the printer.

Problems Printing Using Z-Buffer If your system takes an excessively long time to print Z-buffer figures, you may need to switch to painters model.

7

MS-Windows Characteristics That May Change

This section lists some specific characteristics of MATLAB for MS-Windows that are likely to change in future releases.

• MATLAB 5 cannot be installed into a directory that has spaces in its name. The directory name must not exceed eight characters plus a one- to three-character extension.

• `drawnow 'discard'` is not working.

• The `print` command redraws the figure each time it is called.

• Path information now resides in `pathdef.m` instead of in `matlabrc.m`.

• You cannot place a frame object on top of a Uicontrol object.

Also note that MATLAB 5 running with MS-Windows NT requires NT version 3.51 (not 3.5).

Macintosh

Additional Information

See the `README` file for additional information concerning MATLAB for Macintosh.

UNIX

Using license.dat for UNIX Installations

To expedite the installation of the software, we have included the `license.dat` file needed to install the software on the CD-ROM.

Copy this file from the CD-ROM into the file `$MATLAB/etc/license.dat` before proceeding with your installation.

UNIX Installation Messages

• When you install MATLAB on any HP700 or SGI workstation, the installation succeeds, but you may notice at the end of the installation a message in the shell window containing the following line:

```
 Tar: blocksize = 16
```

You may safely ignore this message.

• When you install MATLAB on an HP700 running the HP-UX 10.01 operating system, the installation succeeds, but several error messages appear in the shell window at the end of the process:

```
A fatal error occurred while running 'xsetup' the X Window
System version of 'install'. The following error was returned
by this program:
Tar: blocksize = 16
X Error of failed request: BadMatch (invalid parameter at-
tributes)
Major opcode of failed request:  42 (X_SetInputFocus)
Serial number of failed request:  12029
Current serial number in output stream:  12030
```

You may safely ignore these messages.

Printing with Ghostscript Drivers
The `print` command does not currently work using Ghostscript drivers on the HP700, DEC Alpha, and IBM RS6000 platforms.

API Characteristics That May Change in Future Releases

This section lists some specific characteristics of the MATLAB 5 API (Application Program Interface) that are likely to change in future releases.

- In MATLAB 5, MATLAB arrays can share data. There is currently no way for a MEX-file to determine that an array contains shared data. MEX-files that modify their input arguments may corrupt arrays in MATLAB's workspace. This style of programming is strongly discouraged.
- The Fortran interface to the new MATLAB API routines has not yet been implemented.
- Engine support is now implemented on PC platforms using OLE V4 data types only.
- In MATLAB 5, changing directories unloads any loaded MEX-files and runs any registered mexAtExit routines. This was not true of MATLAB 4. You can override this behavior by calling the new MEX API routine, mexLock(). This allows you to lock the MEX-file in memory. MEX-files that are locked should be on the MATLAB path. If, after changing directories, a locked MEX-file is no longer on the MATLAB path, it will not be unloaded but can no longer be executed.
- mexIsLocked currently *always* returns the value 1.

Notes for MATLAB 5 Beta Users

Read this section only if you have worked with Alpha or Beta versions of MATLAB 5, and are now working with the FCS (First Customer Ship) version of MATLAB 5.

This section describes features and characteristics of MATLAB 5 that were introduced during the MATLAB 5 Alpha/Beta program that have changed either during the MATLAB 5 Alpha/Beta program or in the MATLAB 5 FCS version.

The material presented in this *Late-Breaking News* describes some aspects of the MATLAB 5 language not currently mentioned elsewhere in the documentation.

The MATLAB 5 features are discussed in the *MATLAB 5 New Features Guide.* If you have previously used MATLAB 4, you will be particularly interested in the section "Upgrading to Version 5.0."

Language Feature Changes

argname Function Changed to inputname
The `argname` function has been renamed to the `inputname` function.

bittest Function Renamed bitget
The `bittest` function has been renamed `bitget`.

bug Function Removed
The function `bug`, which during the MATLAB Alpha/Beta program enabled you to create a bug report, has been removed for FCS. Use the Help Desk, as described on page 5.

extract Function Removed
The function `extract`, which extracted cell array contents, has been removed. Use direct cell array indexing with the { } notation to access the contents of an array.

11

fields.m File Renamed fieldnames.m

The M-file `fields.m` has been renamed `fieldnames.m`.

numeric Function Removed

The `numeric` function has been removed. Use `double` to convert a character into its numeric codes.

rightjust Function Renamed to strjust

The function `rightjust`, which right-justifies a character array, has been renamed `strjust`.

structs Function Combined into struct

The function `structs`, which creates structures, has been combined into `struct`.

Graphics Feature Changes

Axes Stretch Property Removed

The Axes `Stretch` property has been removed. MATLAB now disables the stretch-to-fill behavior whenever the Axes `DataAspectRatioMode`, `PlotBoxAspectRatioMode`, or `CamerViewAngleMode` is set to manual. Note that specifying a value for the `DataAspectRatio`, `PlotBoxAspectRatio`, or `CamerViewAngle` sets the associated mode to manual.

Axes ViewPortScale and ViewPortScaleMode Properties Removed

The functionality that was embodied in the `ViewPortScale` property is now achievable using the `CameraViewAngle` property. Note that setting `ViewPortScale` to 1 is equivalent to using the new `zoom fill` option.

ChangeFcn and CurrentProperty Properties Removed

The `ChangeFcn` and `CurrentProperty` properties have been removed.

bar and barh Functions Changed

The bar and barh functions no longer support the two output argument forms that they did during the MATLAB 5 Alpha/Beta program:

```
[xb, yb] = bar
[xb, yb] = barh
```

colordef Function Replaces Several Functions

The colordef function replaces the kdefault, wdefault, default4, and cleardef functions.

ExecutionQueue Property Removed

The ExecutionQueue property has been removed. The BusyAction property provides similar functionality.

See the axes function in the online *MATLAB Graphics Reference* for more information about each property.

HandleVisibility Property Replaces HiddenHandle Property

The HandleVisibility property replaces the HiddenHandle property.

HiddenVisibility is a property of all objects. It controls the scope of handle visibility within three different ranges. Property values can be:

- on — The object's handle is available to any function executed on the MATLAB command line or from an M-file. This is the default setting.
- callback — The object's handle is hidden from all functions executing on the command line, even if it is on the top of the screen stacking order. However, during callback routine execution (MATLAB statements or functions that execute in response to user action), the handle is visible to all functions, such as gca, gcf, gco, findobj, and newplot. This setting enables callback routines to take advantage of MATLAB's handle access functions, while ensuring that users typing at the command line do not inadvertently disturb a protected object.
- off — The object's handle is hidden from all functions executing on the command line and in callback routines. This setting is useful when you want to protect objects from possibly damaging user commands.

13

For example, if a GUI accepts user input in the form of text strings, which are then evaluated (using the `eval` function) from within the callback routine, a string such as `'close all'` could destroy the GUI. To protect against this situation, you can temporarily set `HandleVisibility` to `off`:

```
user_input = get(editbox_handle,'String');
set(gui_handles,'HandleVisibility','off')
eval(user_input)
set(gui_handles,'HandleVisibility','commandline')
```

-psdefcset Option for print Function Renamed -adobecset

The `–psdefcset` option to the `print` command has been renamed to `–adobecset`. This option specifies that MATLAB should use Adobe's default character set encoding for PostScript, rather than ISO Latin-1 character set encoding.

Zbuffer Property Removed

The `ZBuffer` Figure property has been removed. Statements that instruct you to set the `ZBuffer` property should be replaced with statements that set the Figure `Renderer` property. For example, replace:

```
set(gcf,'ZBuffer','on')
```

with

```
set(gcf,'Renderer','zbuffer')
```

Application Program Interface Feature Changes

mexSearchMATLABPath Function Removed

The function `mexSearchMATLABPath` has been removed from the MEX interface. Replace `mexSearchMATLABPath()` with a call to the MATLAB `which` function using `mexCallMATLAB()`.

mxCreateDoubleMatrixFromData Function Removed

The function `mxCreateDoubleMatrixFromData` has been removed from the MEX interface. Replace `mxCreateDoubleMatrixFromData` with a call to `mxCreateDoubleMatrix`, followed by copying the data into the array.

mxReshape and mxGetSize MEX-functions Renamed

The following MEX functions that were introduced in the MATLAB 5 Alpha/Beta program have been renamed:

- mxReshape is now mxSetDimensions.

- mxGetSize is now mxGetDimensions.

- mxIsGlobal is now called mexIsGlobal. Rewrite and recompile MEX-files that call mxIsGlobal.

UNIX Path Information

Path information now resides in pathdef.m instead of in matlabrc.m.

15