



Solution Number: 33513

Date Last Modified: 2003-03-07

Product: MATLAB 6.5 ==> 6.5

Platform: Windows

Problem Description

Is it possible to call a dynamic linked library from MATLAB?

All operating systems provide a collection of functions precompiled into a shared library file (dynamic linked library in Windows). These libraries are designed for use by one or more applications running on the system. Given the collection of libraries already provided by the operating system as well as other software vendors, there is a significant value in being able to leverage the use of the shared library functions from inside the MATLAB environment.

Solution:

As of MATLAB 6.5 (R13), it is now possible to access functions defined in Windows standard dynamic linked libraries through the MATLAB command line. This feature is only available for Windows 98/NT/2000/XP. For MATLAB 6.5 (R13) the files needed to add this new functionality must be downloaded from the following site:

<ftp://ftp.mathworks.com/pub/tech-support/solutions/s33513/genericDll.exe>

To install:

- 1) Quit any current MATLAB sessions.
- 2) Download the GenericDLL.exe file (112K). The download consists of self-extracting executable that installs the necessary files into your MATLAB directory.
- 3) Save the downloadable to your local hard disk.
- 4) Double-click the executable to start the installation on your local PC. The WinZip Self-Extractor opens, indicating the version of the update.
- 5) Read the comments in the WinZip Self-Extractor dialog, and then click OK. A dialog opens with the default location for MATLAB root as C:\MATLAB6p5. If MATLAB is installed in a different directory on your machine, specify the correct location of your MATLAB root directory.

6) Click the Unzip button to install the interface files in the appropriate directories. After extracting and installing the files, a new dialog box opens and displays a message indicating that files have been successfully unzipped. The installation is complete. Click OK to close.

7) Exit the installation program by clicking Close in the WinZip Self-Extractor dialog box. Your interface to shared libraries is now ready for use.

8) If you have toolbox caching enabled or obtain the following warning messages

```
\\System\MATLAB\toolbox\toolboxname not found in Toolbox Path Cache
```

```
Warning: MATLAB Toolbox Path Cache is out of date and is not being used.
```

when you launch MATLAB, you will need to update the toolbox cache. For information on how to update the toolbox cache please refer to the following website:

<http://www.mathworks.com/support/solutions/data/32237.shtml>

The new feature allows you to load a Windows standard DLL into the MATLAB memory space and then access any of the functions defined therein. The DLL must provide a C interface in order to load and use it from MATLAB. The DLL could contain functions programmed in languages other than C. These functions are still available in MATLAB provided that the functions have a C interface.

Although data types differ between MATLAB and the C language environment used to program the DLL, in most cases, you can seamlessly pass MATLAB types to the functions in the library. MATLAB handles most of the data conversions necessary to marshal data to and from the DLL.

Some limitations and restrictions that must be noted are:

- 1) At this time, the MATLAB Interface to Shared Libraries is supported on Windows systems only. Windows shared library files have a file extension of .dll.
- 2) Passing a void ** argument (that is, pointer to a VOID pointer) to a function in a shared library is not supported in this release.
- 3) Passing a complex structure argument (that is, a structure constructed from other structures) to a shared library function is not supported in this release.
- 4) MATLAB does not support manipulation (e.g., addition, subtraction) of pointers returned by functions in a shared library at this time.

For more information on how to use the MATLAB to load and call the shared library functions and specifics on data conversion, please consult the PDF documentation shipped with the files.

Did this information help? Yes No Didn't Apply
Is the level of technical detail appropriate? Yes Too Much Not Enough

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