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Jakub: MxSlimCurve

Installing mxSlimCurve

mxSlimCurve is a MEX wrapper for the engine **SlimCurve**. In order to run it in Matlab, the mxSlimCurve MEX/C code must be compiled first. Each time demoSlimCurve runs it checks if a compiled version of mxSlimCurve is available. Otherwise, it tries to compile it by running the compileSlimCurve script. Chances are that this process will fail unless you first set Matlab MEX correctly.

Step-by-step installation instructions

Time required 1-10 minutes.

1. Ensure that you have matlab and c folders with all their contents placed in the same directory for the compilation.
2. Once compiled, you will only require the mxSlimCurve.m file for help and the mxSlimCurve.extension file that will be created during the compilation to run mxSlimCurve. You may need to recompile it if you move your code to a computer with different operating system or architecture. The exact name of the mxSlimCurve.extension file will differ according to the system you use:

OS	File name
Windows 64-bit	mxSlimCurve.mexw64
Windows 32-bit	mxSlimCurve.mexw32
Linux 64-bit	mxSlimCurve.mexa64
Linux 32-bit	mxSlimCurve.mexglx
MAC OS X	mxSlimCurve.mexmaci64

1. If you know you have GCC or Windows SDK 7.1 installed and one of them is selected as the active Matlab MEX compiler, just run demoSlimCurve. It compiles mxSlimCurve and creates a window with example graphs. Type help demoSlimCurve to see its help file. Run compileSlimCurve for compilation without a functional demonstration.

Compiling mxSlimCurve on Windows.

Time required 2-10 minutes. mxSlimCurve can be compiled on Windows using **Microsoft Windows SDK 7.1** OR **gcc**.

1. Run mex -setup on Matlab command line. It will give you several questions that you must answer in order to choose the correct mex compiler:
 1. "Would you like mex to locate installed compilers [y]/n?" Hit ENTER.
 2. Type the number in the options that you are given that points to "Windows SDK 7.1" or "gcc" and hit ENTER. In my case the two sensible options included numbers 2 or 3: "[2] Microsoft Software Development Kit (SDK) 7.1 in C:\Program Files\Microsoft Visual Studio 10.0" and "[3] gcc in C:\PROGRA~1\CODEBL~1\MinGW\bin".

3. **If neither is available, you must install it and restart Matlab before proceeding.** See paragraph below on the installation instructions.
4. You are then asked to verify your choice of compiler. If it says "Compiler: Microsoft Software Development Kit (SDK) 7.1" OR "Compiler: gcc" you made the correct choice and therefore hit ENTER.
2. Change into the directory that contains `mxSlimCurve`.
3. Run `demoSlimCurve`. It compiles `mxSlimCurve` and uses it to create a window with example graphs. Type `help demoSlimCurve` to see the help file for `demoSlimCurve`. Run `compileSlimCurve` for compilation without a functional demonstration.

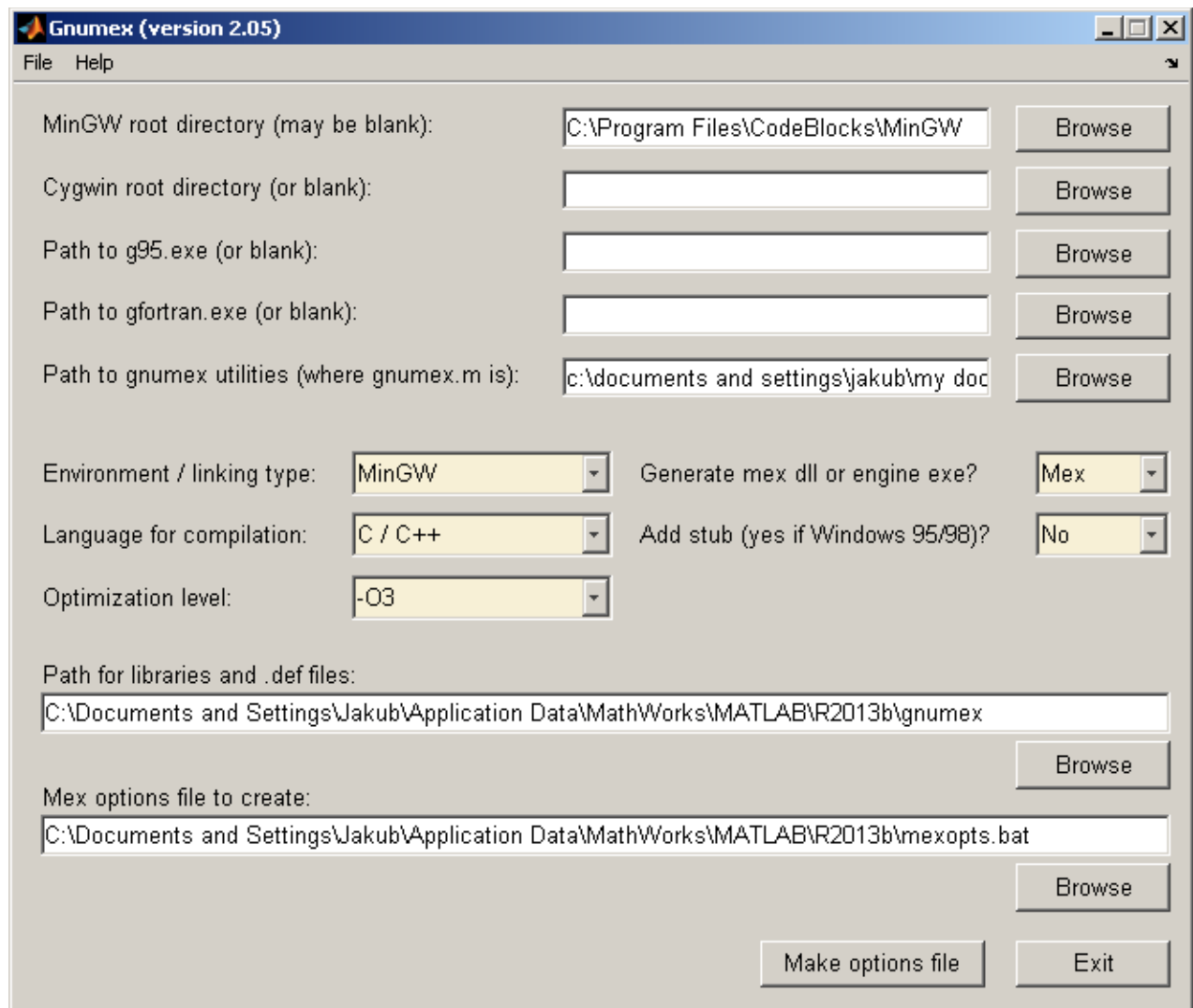
Installing mex compilers on Microsoft Windows.

Time required 10 minutes. You have a choice of installing either Microsoft Windows SDK 7.1 or gcc in order to be able to run `mxSlimCurve`.

For Microsoft Windows SDK 7.1, follow the instructions on **Microsoft Windows SDK for Windows 7 and .NET Framework 4** on the Microsoft Download Center.

For gcc, you may want to install **Cygwin** or follow the attached step-by-step guide on installing MinGW:

1. Compilation on Windows requires the GNU Compiler Collection **<http://gcc.gnu.org/>** **GCC** to be installed on your computer first. There are various ways to achieve this, but the most straightforward is to install Minimalist GNU for Windows **MinGW**.
2. Proper way: Obtain the **MinGW Installer** and follow its instructions.
3. Fast, user friendly way: Install full package of **<http://www.codeblocks.org/downloads/26>** **CodeBlocks** including MinGW. Use only the full package (~100 MB) that includes MinGW.
4. Once MinGW is installed, set up your Matlab to work with GCC:
 1. Obtain **<http://sourceforge.net/projects/gnumex/files/latest/download>** **Gnumex**, which creates a `mexopts.bat` file with all the compilation instructions for Matlab MEX.
 2. Start Matlab.
 3. Change into the `gnumex` directory.
 4. Run `gnumex` script. It opens a window.
 5. Fill in the first line only "MinGW root directory (may be blank):" and leave the rest as it is. In my case the MinGW root directory was "C:\Program Files\CodeBlocks\MinGW". If you installed MinGW into "C:\mingw", include that instead.



- 6.
7. Hit "Make options file" button.
8. Hit "Confirm" button in the window that pops up.
9. It will create a mexopts.bat file that provides the compilation options for MEX.
10. Type `mex -setup` on the Matlab command line. It will ask you several questions that lead MEX to use the GCC coming with MinGW.
 1. "Would you like mex to locate installed compilers [y]/n?" Hit ENTER.
 2. Type the number in the options that you are given that points to "gcc" and hit ENTER. In my case it was number 3 "[3] gcc in C:\PROGRA~1\CODEBL~1\MinGW\bin".
 3. You are then asked to verify your choice of compiler. If it says "Compiler: gcc" you made the correct choice and therefore hit ENTER.

Compiling mxSlimCurve on MAC OS X

Time required 2-10 minute. mxSlimCurve can be compiled on MAC OS X using **xcode**.

1. Install **xcode** and run it once to accept its license terms.
2. Run `mex -setup` on Matlab command line. It will give you several questions that you must answer in order to choose the correct mex compiler:
 1. "The options files available for mexsh are:"
 2. Type the number in the options that you are given that points to "mexopts.sh : Template Options file for building MEX-files" and hit ENTER. In my case the two sensible option was number 1: `/Applications/MATLAB_R2013b.app/bin/mexopts.sh`.
 3. "Overwrite /Users/yourlogin/.matlab/R20???/mexopts.sh ([y]/n)?" Hit ENTER to confirm

the selection.

3. Change into the directory that contains `mxSlimCurve`.
4. Run `demoSlimCurve`. It compiles `mxSlimCurve` and uses it to create a window with example graphs. Type `help demoSlimCurve` to see the help file for `demoSlimCurve`. Run `compileSlimCurve` for compilation without a functional demonstration.

Compiling `mxSlimCurve` on Linux

Time required 1 minute.

1. Run `demoSlimCurve`. It compiles `mxSlimCurve` and use it to create a window with example graphs. Type `help demoSlimCurve` to see the help file for `demoSlimCurve`. Run `compileSlimCurve` for compilation without a functional demonstration.

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