Constraint Modeller

The *Constraint Modeller* is a software environment created at the University of Bath as part of its research into constraint-based design and its application to machine design. The modeller is driven by commands and these can be written in files called macros. A macro has been created for you to use in order to select a mechanism for assignment 1.

The current version of the modeller is Java-based. You will need to launch this application. To do this, use a web browser and EITHER go to:

http://people.bath.ac.uk/ensgm/webcm2/download_cm.html

OR, at the university's main web page, enter *cmlaunch* into the search facility.

There are two options (figure 1). The first loads a copy of the software onto your machine (to run under Java). The second gives access to a collection of files.

One of these files is a zipped set of macro (and other) files which form a "demonstration kit". You do **not** necessarily need the demonstration kit in order to use the constraint modeller. However it contains a number of examples and running these and looking at the macros (command files) which are associated may help understanding of the system.

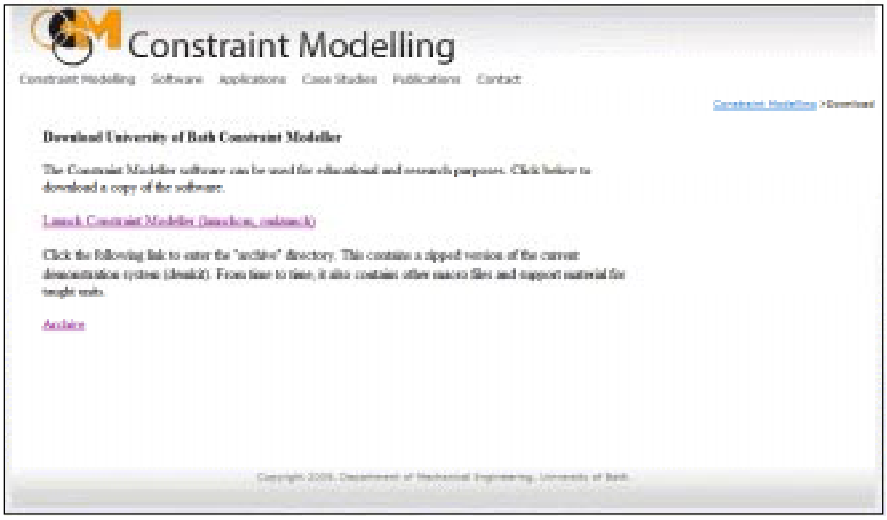

Figure 1: Web page to "launch" constraint modeller

Starting the constraint modeller

The "launch" process above should start the constraint modeller. It also creates an icon for re-starting the constraint modeller.

With the modeller started, there is a single menu option *File* at the very top of the screen.

The system is driven by commands. These can be typed directly into the command window. However this is error-prone and if there is a need for a large number of commands it is usually easier to create a "macro". A macro is simply a text file than contains a collection of command that need to run.

The demonstration kit contains a large number of macro files. These "call" each other and the main files is `demkit.mac`.

If you have a macro file to run (e.g. `demkit.mac`), then click on the *File* option (figure 2) and then choose *Run Macro*. Now go to wherever the macro is held and select it.

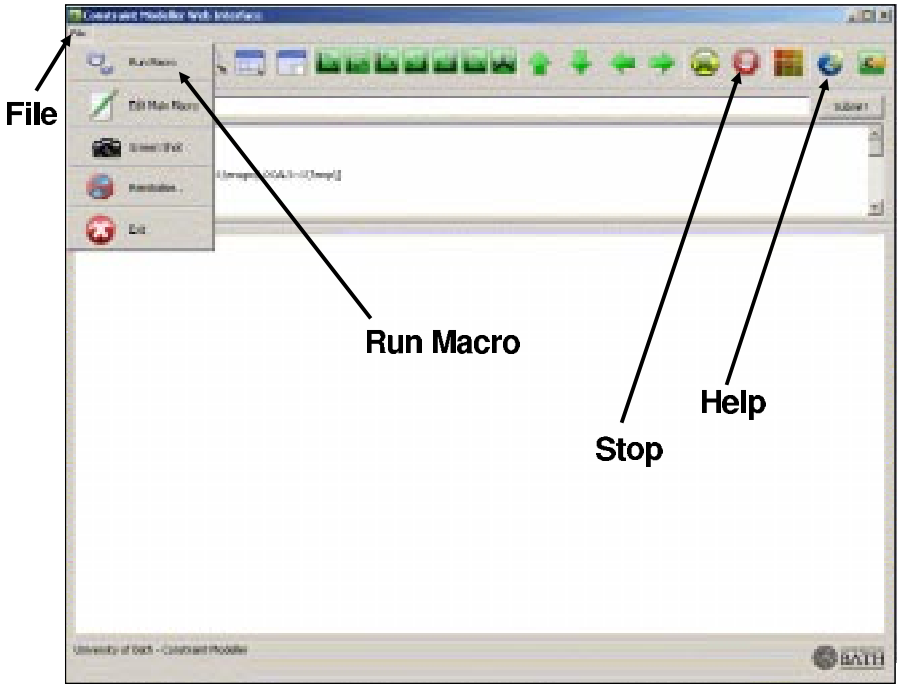

Figure 2: Starting the constraint modeller

Help

The system has a help icon. This is shown in figure 2. There are help pages for each of the commands in the system. Additionally, there are some notes providing an overview of the system, and discussing the examples in the demonstration kit.

Text editor and macros

A macro is a command file. This is an ordinary text (ASCII) file with commands.

To create a macro, a text editor needs to be used. This is external to the system. Any text editor can be used.

Perhaps the best of the editors available as part of the standard Microsoft Windows environment is *Wordpad*. This can (normally) be found by selecting the *Start* button in the bottom left of the Windows screen and then going to *All Programs* and then *Accessories*.

Note that a macro file for the constraint modeller normally needs to have the file extension `mac`. For example, the base macro for the demonstration kit is `demkit.mac`. However, Wordpad sometimes wants to attach some other file extension. So when the file is saved, ensure it is being saved as a *Text Document* and (if necessary) remove the `txt` file extension and replace it with `mac`. Selecting *No wrap* under *View-Word wrap* may be helpful. Since each command line is normally ended by pressing the *Enter* key, Wordpad treats this as the end of a paragraph and may therefore add a blank line. This can also be suppressed, as follows. On the *Home* page, the top right of the *Paragraph* options allows the suppression of the addition of space after each paragraph.

There are likely to be other text editors available (perhaps via the Internet). Any text editor is fine provided it can indeed create simple ASCII text files (preferably with the `mac` file extension).

This author recommends:

- not including the space character as part of any file name (of a macro etc.) or of any directory (folder) or subdirectory (subfolder)
- avoiding use of the *Tab* character to create indentation of command line (do this instead with spaces)

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March 2013