Application note: Using Cygwin to compile and run *FullSWOF_1D*, *FullSWOF_2D* or *SWASHES* under windows.

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FullSWOF_1D, *FullSWOF_2D* and *SWASHES* have been developed under Unix-like environments. Although it may not be required, it is convenient to use such a Unix-like environment under windows. This application note gives directions about installing the Unix-like environment Cygwin, and using it to compile and run *FullSWOF_1D*, *FullSWOF_2D* and *SWASHES*.

1 Installation of Cygwin

1. From `www.cygwin.com`, download the file **setup.exe** and save it into a dedicated directory (e.g. `c:\software\cygwin_install`).
2. Launch **setup.exe**.
3. Click on the "next" button on the first screens. Then, choose a download site (next to you) and click on the "next" button once more. You will be prompted to select packages. A basic set of packages are already selected. To compile the software smoothly, you need to add a few more packages by clicking on "skip":
   - from the category "Archive"
     - unzip: Info-ZIP decompression utility
   - from the category "Devel"
     - gcc-g++: C++ compiler
     - make: The GNU version of the 'make' utility

   Additionally, if you want to display graphs using gnuplot, you also need:
   - from the category "Graphics"
     - gnuplot: A command-line driven interactive function plotting utility
   - from the category "X11"
     - xorg-server: X.org X servers
     - xinit: X.org X server initializer
4. Then click "next" up to the start of downloading.
5. Finally, click "End".

This will use about of 250 MB (490 MB with gnuplot).

2 Compiling and running the software

1. Download the *FullSWOF_1D*[1], *FullSWOF_2D*[2] or *SWASHES*[3] package into a dedicated directory.

[1] `https://sourcesup.renater.fr/projects/fullswof-1d/`
[2] `https://sourcesup.renater.fr/projects/fullswof-2d/`
[3] `https://sourcesup.renater.fr/projects/swashes/`

2. Open a Cygwin terminal using the desktop icon or the menu.
3. Move to your dedicated directory. For example, to access the directory `D:\user\code`, you should enter the command `cd /cygdrive/d/user/code`
4. Unzip the package (e.g. `unzip package.zip`).
5. Move to the newly-created directory. This directory will contain all the files related to the source code.
6. Refer to the software-specific documentation to compile and run the code.
7. To use gnuplot, open the cygwin terminal and type `startx`. This will launch the X server. Then type `gnuplot`.

For more information about Cygwin, see `http://www.cygwin.com`