

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](http://www.cygwin.com), download the file `setup-x86_64.exe`, and save it into a dedicated directory (e.g. `c:\software\cygwin_install`).
2. Launch `setup-x86_64.exe`.
3. Click on the “Next” button on the first screens. Then, choose a download site (next to your location), and click on the “Next” button once more. You will be prompted to select packages. A basic set of packages is already selected. To compile the software smoothly, you need to add a few more packages. For the following list of packages, in the column entitled “New“, click on the drop-down menu to select the version to be installed:
  - in the category “Archive”
    - unzip: Info-ZIP decompression utility
  - in the category “Devel”
    - gcc-g++: C++ compiler Collection (C++)
    - make: The GNU version of the ‘make’ utility

Additionally, if you want to display graphs using gnuplot, you also need:

- in the category “Graphics”
    - gnuplot-X11: A command-line driven interactive function plotting utility
  - in the category “X11”
    - xorg-server: X.org X server
    - xinit: X.org X server launcher
4. Then click “Next” up to the start of downloading.
  5. Finally, click “End”.

This will use about of 610 MB (840 MB with gnuplot).

## 2 Compiling and running the software

1. Download the *FullSWOF\_1D*<sup>1</sup>, *FullSWOF\_2D*<sup>2</sup> or *SWASHES*<sup>3</sup> package into a dedicated directory.
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, launch the “XWin Server” from the windows’ menu. Then, in the taskbar, select `Xserver -> System tools -> Cygwin terminal`. In the cygwin terminal, type in `gnuplot`. To test it, type `test` after the gnuplot prompt. An example window should display.

*For more information about Cygwin, see <http://www.cygwin.com>*

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<sup>1</sup><https://sourcesup.renater.fr/projects/fullswof-1d/>

<sup>2</sup><https://sourcesup.renater.fr/projects/fullswof-2d/>

<sup>3</sup><https://sourcesup.renater.fr/projects/swashes/>