

XMLlab Toolbox for Scilab, version 1.4

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1 Introduction

XMLlab is an XML-based simulation authoring environment. The proposed description language allows to describe mathematical objects such as systems of ordinary differential equations, systems of non-linear equations, partial differential equations in two dimensions, or simple curves and surfaces. It also allows to describe the parameters on which these objects depend. This language is independent of the software and allows to ensure a relative perennity of authors work, as well as collaborative work and content reuse.

You can have a more precise idea of the dtd by looking at the file [xmllab-scilab2004.pdf](#) in the "doc" directory (there is also a french version, in the file [xmllab-tice2004.pdf](#)). A complete documentation is also available at the XMLlab's web site at the url <http://xmllab.org/documentation.html>.

1.1 Authors and Credits

XMLlab is developed by Stéphane Mottelet and André Pauss (currently both with the University of Compiègne).

Please use the address `mottelet@utc.fr` to send questions or bug reports.

1.2 Licensing

XMLlab is copyright (C) 2001-2004 by S.Mottelet and A. Pauss and is distributed under the terms of the GNU General Public License (GPL).

In short, this means that everyone is free to use XMLlab and to redistribute it on a free basis. XMLlab is not in the public domain; it is copyrighted and there are restrictions on its distribution (see the file LICENSE). For example, you cannot integrate this version of XMLlab (in full or in parts) in any closed-source software you plan to distribute (commercially or not).

If you want to integrate XMLlab into a closed-source software, or want to sell a modified closed-source version of XMLlab, please contact us in person. You can purchase a version of XMLlab under a different license, with "no strings attached" (for example allowing you to take parts of XMLlab and integrate them into your own proprietary code).

1.3 A Brief request

If you use XMLlab, and especially if you use it to accomplish real work, we would like very much to hear from you. A short letter or email (to) describing how you use XMLlab will mean a lot to us.

The more people we know are using this program, the more easily we can justify spending time on improvements that we hope will benefit you.

Also, let us know if you want us to put you on a list to receive email whenever a new version of XMLlab is available. This is not a public list; you won't get email from anyone but us, and you won't get it often. No need to fear a full mailbox.

If you use a simulation generated by XMLlab in a publication, please include an acknowledgment as well.

2 Installation/Dependencies

Under all operating systems, If you don't already have Scilab, you will need to install it first. The required version of Scilab is

Scilab-3.1.1

2.1 Windows XP/2000 single user installation

You just have to unpack the XMLlab archive somewhere in your system, say

`C:\Program Files\XMLlab`

for instance, and then build the toolbox.

2.1.1 Build the toolbox

Launch Scilab from its desktop icon. In Scilab's command window, in the `File` menu, select `Exec...` A file selection window will appear. Go to the folder

`C:\Program Files\XMLlab`

and select the file `builder.sce`.

After building the toolbox, Scilab will load it (you don't have to restart Scilab). The next time you start Scilab, the XMLlab toolbox will be automatically loaded at startup time.

If you plan to use XMLlab only from Scilab's command window, jump to section 2.

2.1.2 User environment variables

If you want to be able to use `xmlab` from the shell command line, add the string

`C:\Program Files\XMLlab\Windows NT\bin;`

to the `Path` system environment variable.

2.2 Windows XP/2000 Multi-user installation

- Get administrator rights and unpack the XMLlab archive in some system directory (e.g. C:\Program Files). Then build the toolbox as in section 2.1.1
- Every user should then launch Scilab and execute the script `setup.sce` located in the XMLlab folder.

Any user wanting to use xmlab from the shell command line must proceed as in subsection 2.1.2 by modifying the `Path` user environment variable.

2.3 Linux/Darwin single user installation

You just have to unpack the XMLlab archive somewhere in your home directory, say `/home/dude/XMLlab` for instance, and then build the toolbox.

2.3.1 Build the toolbox

Launch Scilab. In Scilab's command window, in the File menu select File Operations. Go to the folder `/home/dude/XMLlab` and select the file `builder.sce`. Then click on the Exec button (X11 version) or select `exec` in the list of available operations and click on the OK button (GTK version).

After building the toolbox, Scilab will load it (you don't have to restart Scilab). The next time you start Scilab, the XMLlab toolbox will be automatically loaded at startup time.

If you plan to use XMLlab only from Scilab's command window, jump to section 2.

2.3.2 User environment variables

If you want to be able to use xmlab from the shell command line, add the string (replace `Linux` by `Darwin` if you are using MacOSX)

```
export PATH=/home/dude/XMLlab/Linux/bin:$PATH
```

in your `.profile` or `.bash_profile` (if you are using a bash shell), or

```
setenv PATH /home/dude/XMLlab/Linux/bin:$PATH
```

in your `.cshrc` or `.tcshrc` (if you are using csh or tcsh).

2.4 Linux/Darwin Multi-user installation

- Get administrator rights and unpack the XMLlab archive in some system directory (e.g. `/usr/local`). Then build the toolbox as in section 2.3.1
- Every user should then launch Scilab and execute the script `setup.sce` located in the XMLlab folder.

Any user wanting to use xmlab from the shell command line must proceed as in subsection 2.3.2, by replacing `/home/dude` by `/usr/local`.

3 Test

3.1 On Scilab's command line

```
-->chdir(%xmlab)
-->chdir examples/Physics
-->xmlab -run oscill
```

3.2 XMLlab menu

You can also use the XMLlab menu on the menu bar of the command window, and run the examples from the demo submenu.

4 Uninstallation

To uninstall the XMLlab Toolbox, just select `Uninstall XMLlab` in the XMLlab menu in Scilab's command window.

5 Create and edit Simulation files

XMLlab is not distributed with an editor, this your job to find the editor that fits best your needs. If you are able to figure out the authorized constructions by looking at the DTD file, then you don't need an XML editor, and a good text editor with syntax highlighting will be enough.

5.1 XMLMind XML Editor (XXE)

If you are not completely familiar with XML stuff, then you need a real XML editor. We recommend the XMLmind XML editor, which is available at no charge at <http://www.xmlmind.com>.

In order to make XXE aware of the XMLlab dtd, you must have a copy of the `XMLlab/catalog.xml` file in some precise location. This file is automatically copied there during the installation of XMLlab :

- **Windows XP/2000** : `C:\Documents and Settings\Username\XMLmind\XMLeditor\addon\conf`
- **Unix/Linux/Darwin** : `$HOME/.xxe/addon/config`

5.2 Scilab built-in editor (scipad)

You can use the built-in Scilab editor, which is able to use syntax highlighting. Select `Edit a simulation` in the XMLlab menu. The XMLlab Toolbox adds an XMLlab menu to Scipad with the items `Validate` (to make an validation of your file against the DTD) and `run` to run the simulation.