LEMPS – User Guide (1.0.170221)

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# Introduction

LEMPS (Lagrangian Engine for Methods of ParticleS) is a general-purpose open-source c++ library that facilitates the application and implementation of meshless numerical methods. The goal of the LEMPS-project is to establish a meshless solver that can solve user-defined system of PDE-s over a set of spatially distributed nodes (particles) in one, two, or three dimensions. Solutions can be governed by the priori implemented schemes like SPH, DEM, etc.

For further information and development contribution

To read a short introduction of the project with simple examples please visit the project page: <https://bitbucket.org/lempsproject/>

# Installation

LEMPS cannot be installed on windows, it supports only MAC OS and Ubuntu. The installation requires a very few dependencies to be installed. These dependencies are:

* Visual Toolkit 7.0.0 ([link](http://www.vtk.org/files/release/7.0/VTK-7.0.0.zip))
* Common utilities ([link](https://bitbucket.org/lempsproject/commonutils/downloads/commonutils-1.0.170221.zip))
* ProLog ([link](https://bitbucket.org/lempsproject/prolog/downloads/prolog-1.0.170221.zip))
* HandyXML ([link](https://bitbucket.org/lempsproject/handyxml/downloads/handyxml-1.0.170221.zip))

You do not need to download and install the dependencies manually, the LEMPS installer does it for you:

$ sh intall.sh

After installation, the executable **pmsimple** is located in the bin directory. The installer also adds the executable to your environmental variables so you can run it from anywhere. You can find the **install.sh** file in the package you obtained or you can download it [here](https://bitbucket.org/lempsproject/prolog/downloads/install-1.0.170221.sh).

Note: LEMPS currently does not support Windows systems.

# Input/Output files

# Structure of the XML-documents

# Running the solver

# Example