Meiga Installation Manual

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1. PRIOR TO INSTALLATION

Before installing Meiga, the following packages must be installedÑ

1. **ROOT**
   root-6.20.04 (download from the release page).
2. **Geant4**
   Requirements:
   Version geant4-07.p03 (download from the release page).
   CMake version >= 3.16
   X11 OpenGL (for enabling visualization)

   Geant4 Installation

   There are multiple ways of installing Geant4 (see the getting started guide).

   Once you have downloaded the source code, open a terminal and type:
   $ cd <path-to-geant4>
   $ mkdir build
   $ mkdir install
   $ cd build
   $ cmake -DCMAKE_INSTALL_PREFIX=../install -DGEANT4_INSTALL_DATA=ON
   -DGEANT4_USE_OPENGL_X11=ON <path-to-src>

   $ make -j N
   $ make install

   NOTE: The flag **INSTALL_DATA** must be set **ON** in order to download the required data libraries.

If you already have the data libraries in your system replace the

-DGEANT_INSTALL_DATA=ON

by

-DGEANT_INSTALL_DATADIR=<path-to-data>

3. **Other packages**

    1. **Boost**
       Needed for XML and JSON parsers (version 1.75 or higher)

    NOTE: If needed install following libraries:

    `filesystem`: `sudo apt -y install libboost-filesystem-dev`
    `iostreams: sudo apt -y install libboost-iostreams-dev`

    2. **view3dscene**
       For visualizing render (.wrl) files
       $ sudo apt-get install view3dscene

2. Set environment

Once geant4 is installed and before installing and running Meiga, we must tell our system where Geant4 and the data files are located.

Open your bashrc (vim ~/.bashrc) and paste the following lines:
(Assuming Geant4 was installed under HOME/lib/geant4)

```
# geant4 environment
source $HOME/lib/geant4/install/bin/geant4.sh
# geant4 additional data libraries
G4COMP="$HOME/lib/geant4/install/share/Geant4-10.7.3"
export G4ABLA=$G4COMP/data/G4ABLA3.1
export G4EMLOW=$G4COMP/data/G4EMLOW7.13
export G4ENSDFSTATE=$G4COMP/data/G4ENSDFSTATE2.3
export G4INCL=$G4COMP/data/G4INCL1.0
export G4NDL=$G4COMP/data/G4NDL4.6
export G4PARTICLEXS=$G4COMP/data/G4PARTICLEXS3.1.1
```

export G4PII=$G4COMP/data/G4PII1.3

export G4SAIDDATA=$G4COMP/data/G4SAIDDATA2.0

export PhotonEvaporation=$G4COMP/data/PhotonEvaporation5.7

export RadioactiveDecay=$G4COMP/data/RadioactiveDecay5.6

export RealSurface=$G4COMP/data/RealSurface2.2

3. Meiga INSTALLATION

Now that Geant4 is installed and the environment is correctly set we can proceed to install Meiga.

1. Download the source code from git repository. For now, we use the development branch called “dev_meiga”. Open a terminal and type:

   $ mkdir dev_meiga
   $ git clone -b dev_meiga git@gitlab.com:muografiar/musim.git dev_meiga

2. Now go to dev_meiga and create a build and install directory
   $ cd dev_meiga
   $ mkdir build
   $ mkdir install

   from the build directory run the cmake command:

   $ cd build
   $ cmake -DCMAKE_INSTALL_PREFIX=../install ../src
   $ make -j N
   $ make install

Once the code is compiled, the executable(s) for running an Application can be found under:

dev_meiga/install/bin

or

dev_meiga/build/Applications/ApplicationName