# **ROOT INSTALLATION**

WSL, UBUNTU & ROOT

At first trying to download from tar, but had weird ELF error.

Then tried to downloaded from conda. Therefore I downloaded conda first. Note: to use conda:

Immagine che contiene testo

Descrizione generata automaticamente

SEEMED USELESSLY HARD 🡪 MOVED ON TO USING THE WINDOWS (BETA) VERSION

Everything it comes with is in [\\wsl$\Ubuntu-22.04\home\stefano](file:///\\wsl$\Ubuntu-22.04\home\stefano).

ROOT ON WINDOWS

Easily downloading ROOT for windows (and adding to PATH) is enough to use it. Maybe adding to path even gace failing message, can’t really remember.

ROOT w. VISUAL STUDIO CODE

CONFIGURATION

Using with visual studio code should make everytjing easier (authomatic completion, words check, colour coded, root file viewer).

1. Installed Visual Studio Code, and added some extensions (python and C++). Then, also added root file viewer extension.
2. Installed Git for Windows (and added to PATH)
3. Followed instructions in: <https://root.cern/blog/root-on-vscode/>.
4. Created folder C:\Users\Stefano\root-on-vscode by copy-paste-execute given lines.
5. ROOT’s installation directory was: C:\root\_v6.26.02
6. Needed a "miDebuggerPath" below MIMode, which mean I need a gdb debugger, like WinBuilds or MinGW. I had the former, hence added to launch.jsone:



This being done, everything is supposed to be working. Then, I moved the workspace folder in my internship folder.

It allows to modify with authomatic completion.

ICONS

The Trees icons represent, well, trees (NO SHIIIIIT)

The Leaves represent final datatsets (click and you’ll see the histogram)

# **ROOT Commands (for ROOT.exe)**

[**https://root.cern/manual/root\_macros\_and\_shared\_libraries/**](https://root.cern/manual/root_macros_and_shared_libraries/)

[**https://root.cern/primer/#root-macros**](https://root.cern/primer/#root-macros)

**Opening**

Either open from root.exe or from prompt (better as can then see errors) with (for me)

cd C:\root\_v6.26.02\root-on-vscode

C:\root\_v6.26.02\bin\thisroot.bat

root

**Change Directory**

gSystem->cd("my\path"); gSystem->pwd()

First bit changes directory, 2nd prints ita s confirmation.

Immagine che contiene testo

Descrizione generata automaticamente**Run File.C**

.L File.C

File(args)

**Browser**

TBrowser browsername

This opens a browsing window which allows to browse through files. If it doesn’t work, close window, perhaps try one more command first to warm up (suggest .help), then try agian with browser (but give ita t least half a minute, sometimes it is rusty). Note: it ses internet connection.

Choosing a file, allows to modify it and most imprtantly run it effectively. Resulting files can then be visualised through VS code ROOT – file -viewer, though histograms should pop up.

Might crash sometimes, not nice.

# **ROOT Macros**

MY ROOT TREES

Magnan’s Intorductory treeLC

This shows how it presents itself on Visual Studio Code

Immagine che contiene testo, elettronico

Descrizione generata automaticamente

“lc” stands for layer-cluster (the 2D cluster).

**C file beginning (complete)**

// Generic Packages

#include <iostream>

#include <iomanip>

#include <fstream>

#include <string>

#include <stdio.h>

#include <cmath>

// ROOT functionalities

#include "TApplication.h"

#include <TArrow.h>

#include <TBenchmark.h>

#include "TBox.h"

#include "TButton.h"

#include "TCanvas.h"

#include "TClass.h"

#include "TClassTable.h"

#include "TColor.h"

#include "TDatabasePDG.h"

#include "TF1.h"

#include "TFile.h"

#include <TFrame.h>

#include "TGraphErrors.h"

#include "TH1.h"

#include <TH2.h>

#include <THStack.h>

#include <TInterpreter.h>

#include "TKey.h"

#include "TLatex.h"

#include "TLegend.h"

#include "TLine.h"

#include "TLorentzVector.h"

#include "TLorentzRotation.h"

#include "TMath.h"

#include <TNtuple.h>

#include "TPad.h"

#include "TParticlePDG.h"

#include <TPave.h>

#include <TPaveText.h>

#include "TPostScript.h"

#include <TProfile.h>

#include "TRandom.h"

#include <TRandom3.h>

#include "TROOT.h"

#include "TRotation.h"

#include "TStyle.h"

#include "TSystem.h"

#include "TText.h"

#include "TTree.h"

#include "TVector3.h"

#include "TVirtualPad.h"

#include "TVirtualPS.h"

#include "Riostream.h"

**Encountered Issues & Solutions**

**Setting a branch address**

It requires an INITIALISED pointer:

type \*ptr; // NOT ENOUGH

type \*ptr=0; //PERFECT

# **HEP Cluster**

Open WSL with Ubuntu

Type : ssh [sv519@lx02.hep.ph.ic.ac.uk](mailto:sv519@lx02.hep.ph.ic.ac.uk)

Password is Pc?.

Then, once in:

* use help to see list of commands
* use exit to exit the session

Magnan’s files are in /vols/cms/magnan/HGCAL/Prod\_Stefano (note vols is not in home, it is in the same folder as home).