Introduction to ROOT: setup

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- Worked on CDF (UniTS, 2009-2013)
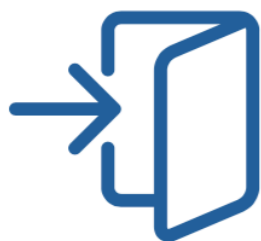 and LHCb (EPFL, CERN, 2013-2019)

- In Belle II since 2019

  https://web.infn.it/Belle-II/index.php/our-research

https://root.cern.ch

ROOT: analyzing petabytes of data, scientifically.

An open-source data analysis framework used by high energy physics and others.

[ℹ Learn more]   [⬇ Install v6.22/08]

Get Started

Reference

Forum & Help

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ROOT enables *statistically sound* scientific analyses and visualization of large amounts of data: today, more than 1 exabyte (1,000,000,000 gigabyte) are stored in ROOT files. The Higgs was found with ROOT!

🌐

As *high-performance* software, ROOT is written mainly in C++. You can use it on Linux, macOS, or Windows; it works out of the box. ROOT is open source: use it freely, modify it, contribute to it!

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ROOT comes with an incredible C++ interpreter, ideal for *fast prototyping*. Don't like C++? ROOT integrates super-smoothly with Python thanks to its unique dynamic and powerful Python ⇄ C++ binding. Or what about using ROOT in a Jupyter notebook?

Class plan

- Tue 14/03 aula D: setup

- Thu 16/03 aula D: basics commands and (very) little C++ tour

- Tue 21/03 aula D: reading and storing data (histograms, tuples)

- Wed 22/03 aula A: manipulating data (inspecting distributions, making selections, making graphs)

- Tue 28/03 aula D: fitting data

- Thu 30/03 aula D: exercises, Q&A

Installation

- Some instructions (a few years old, but should still work)
  https://www.unibo.it/sitoweb/gabriele.sirri2/contenuti-utili/df5f946d

  - For Windows, follow the instructions under "**run Ubuntu natively on Windows 10/11 without Virtual Machines.**"

  - For Mac: in addition to the instructions in the link, you can also use Homebrew (https://brew.sh/index_it) or MacPort (https://www.macports.org/install.php), see https://root.cern/install/#macos-package-managers

- This is the root page for installation, where you can find the link to pre-compiled binaries: https://root.cern.ch/downloading-root

- In case you need, a bash guide (get familiar with Sect. 1, 2 and 3):
  https://swcarpentry.github.io/shell-novice/