

CTEQ/MCnet School 2016

QCD and Electroweak Phenomenology

6-16 July 2016

DESY, Hamburg



CTEQ / MCNet School 2016 on QCD and Electroweak Phenomenology

6-16 July 2016 *DESY Hamburg*
Europe/Berlin timezone

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Tutorial on MC event generators and XFitter

Held by the [MCnet](#) and [FXitter](#) collaborations at [CTEQ/MCnet 2016](#).

Prerequisites

This tutorial uses a virtual machine. Please install [Oracle Virtual Box](#) on your personal computer prior to the tutorial. Due to time constraints we cannot assist you with setting up software during the tutorial itself. If you have questions regarding installation, please ask them beforehand.

Download

The virtual machine disk can be downloaded from [here](#). Unarchive the disk using 7-Zip. If 7-Zip is missing on your Linux system, install the package `p7zip`. On Windows, download the executable from [here](#). On MacOS, use the [unarchiver](#).

Creating the Virtual Machine

Create a new machine with VirtualBox using the GUI. In the first step, VirtualBox will ask for the name of the machine and its OS. For the latter choose Linux -> Ubuntu (32 bit). In the next step, set the size of the memory. About 1GB should be fine. In the last step, select the virtual disk. Choose 'Use an existing virtual hard drive file' and open the *.vdi file you just downloaded and extracted.

Before starting the virtual machine, enter its settings and increase the video RAM size to at least 48MB (Settings -> Display -> Video). If you have more than two processor cores on your host system, allow the VM to use two cores (Settings -> System -> Processor). You must enable hardware virtualization in your BIOS to do this!

Starting the Virtual Machine

We are booting a lightweight Linux, which you can customize.

The login name is **student**, the password is **2016**.

The keyboard layout can be set using the layout switcher in the task bar, or by running `setxkbmap LC` in the terminal, where LC is your language code (us, de,...).

Common tools which are installed include `xterm`, `lterminal`, `vi`, `emacs`, `gv`, `evince` and `firefox`. If you need root privileges to install further programs of your choice, use `sudo`. Note that the package information has been purged, and you need to run `sudo aptitude update` before any other command.

Running the tutorial

Instructions for the tutorials are found [online](#) and in the `~/tutorial/` folder of the virtual machine. There are two main directories, `mc/` and `ps/`, corresponding to the Monte Carlo usage and development tutorial, respectively. For the developers tutorial, please refer to the worksheet in the `ps/` folder. Within the `mc/` folder, there are again two directories, `intro/` and `higgs/`, corresponding to the tutorials on day one and two. These directories are divided into sub-directories `herwig/`, `pythia/` and `sherpa/`. On day one, please refer to the generator-specific instructions in the sub-directories. On day two, please refer to the worksheet in the `higgs/` folder.

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