CTEQ/MCnet Tutorial on MC event generators

Held jointly by the CTEQ and MCnet collaborations at the CTEQ summer school 2013.

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. For Windows use `.zip` format, for Linux/MacOS use `.bz2`. Unarchive the disk (e.g. using `bunzip2` on Linux/MacOS).

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`. 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 2013.

The keyboard layout can be set using the 'Lxkeymap' program from the task bar, or using `setxkbmap LC` in the terminal, where `LC` is your language code (us, de,...).

Common tools which are installed include `xterm`, `lxterminal`, `vi`, `emacs`, `gv`, `evince` and

`firefox`. If you need root privileges to install further programs of your choice, use `sudo`.

Running the tutorial

Instructions for the tutorial are found online and in the `~/tutorials/` folder of the virtual machine. There are three directories, `intro/`, `higgs/` and `boost/`, corresponding to the tutorials on day one, two and three. Each of these directories is again divided into three directories `herwig/`, `pythia/` and `sherpa/`. On day one, please refer to the generator-specific instructions in these directories. On days two and three, please refer to the worksheets in the `higgs/` and `boost/` folders.

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