HL/HE-LHC Physics Workshop Report

Standard Model physics opportunities

Conveners: XX[1]*, YY*[2]
Contributors: ZZ[2]*, WW*[1]
[1] CERN, Geneva, Switzerland
[2] INFN, Pisa

Abstract
This is the abstract.

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1 Introduction

The main repository of the report material is Overleaf. If you are not registered with Overleaf as yet, you can do so. Use your cern.ch mail acocunt, as this will give you, for free, the Professional license. This is needed if you want to access the full functionality, including the ability to grant editing rights to many people.

You can create the project for your section by just cloning this project. It's important that you do it using your professional Overleaf account (namely with your cern.ch email credentials), since the project inherits the functionalities available to its owner. After creating the project, make sure you set the proper administration rights, listing people who will have editing rights. You can do this clicking on the "share" button on top of the overleaf project page. You are given various options, such as making the project read/write accessible to anyone who has the url, or just readable to anyone who has a (different) url, or restricted to users selected in a list. The same button gives you the git repository url, to download the project locally. Notice that those you give rights to cannot further assign rights to others. Only the owner of the project can grant access rights. Of course section editors can clone a new version of the whole chapter, leave alone the other sections to focus on their own, and grant access to it to their co-editors. At the end they just put things back into the master project. I understood that it should be possible to grant rights to a CERN e-group, but I am not sure this is working already, I'm waiting for confirmation.

You can work directly on the Overleaf version, or you can download the whole package locally from the git repository. You can then use the standard git tools to commit updated versions. Working locally is almost essential at the beginning of the project, when you want to create a complete subfolder structure to contain the various sections of your report. Some scripts are available (see below) to faciliate this task.

This document can be compiled in its entirety, using the
$>$ pdflatex report
command from the main directory. In alternative, you can compile individual sections, with the command
$>$ pdflatex section
issued from the section subdirectory. This will generate the complete section, including its bibliography. I am not sure this is possible when working directly on the web with Overleaf. But this works in your local version, if you input the pdflatex commands yourself.

For this to work, you must preserve the template structure of the section.tex file in the directory of each section. You should also make sure that all style files contained in the main directory are present in the section directories. The simplest way to create a new section is to issue the command

```
> make newsection newfolder=new_folder_name
```

from the main directory. Here `new_folder_name` is the name of the directory you want to create to host the new section. A template section file will be created there, together with the img and bib directories (for figures and for the section.bib file, resp). All necessary style files are copied over. Now you just need to input the `new_folder_name/section.tex` file into the main driver file, report.tex, with the syntax:

```
\newpage
\subfile{\main/newdirectory/section}
```

When editing the new `section.tex` file, please pay attention to the header of the template. There are a few weirds commands, and an apparently odd `\begin{document}` statement. These are required to be able to compile the section as a stand alone object. To this end, it is important that the command `\providecommand{\main}{..}` points `\main` to the directory containing the main driver file, `report.tex`. The file paths to figures (Fig. 1) must all include this absolute reference, as in

```
\includegraphics[width=0.45\textwidth]{\main/section1/img/hgg.pdf} .
```

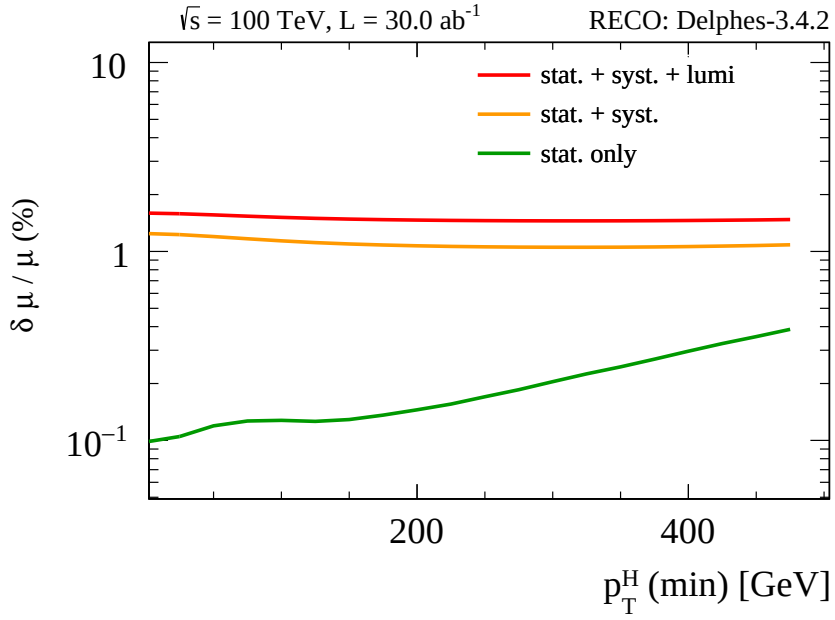

Fig. 1: Caption of the figure.

As for tables, please use the standard tabular environment, with the caption on top of the table. For cross referencing, try use lables such as `\label{eq:eqname}`, `\label{tab:tabname}` and `\label{fig:figname}`.

If you need subsections, you can include them here directly, or input them as files, which can live in their own subdirectory. If including a subsection from a file, import them with the command

```
\subfile{\main/section1/sub1/mysubsec}
```

where mysubsec.tex would start of course with the statement `\begin{subsection}`. In this case, make sure you define properly the path to figures and other files. This is crucial to guarantee compatibility of compilation of the whole Chapter and or the individual section. The fact that a Section compiles doesn't imply that the Chapter will compile, if paths are entered inaccurately. At this time I have not foreseen the ability to compile subsections standalone, I hope it is not necessary.

1.1 Bibliography

Keep each Section totally selfcontained, with its own folder(s) for figures, and its own file for bibliography [1]. Use bibtex format. Please get the bibtex from Inspire, other sources may generate generate conflicts with the bibliography style file. For internal notes of the LHC experiments, get the bibtex input from CDS (the CERN Document Service). Each section must have its own bib files. These are called `section.bib`, and should stay in the folder `\main/mysection/bib/section.bib}`. When you create a new section, add the bib file to the string

```
\def\bibfiles{\main/bib/chapter,\main/section1/bib/section,\main/section2/bib/section}
```

that is included in the main driver, report.tex.

2 New Section Title

References

[1] M. Mangano, *Physics at the FCC-hh, a 100 TeV pp collider*. CERN Yellow Reports: Monographs. CERN, Geneva, 2017. https://cds.cern.ch/record/2270978.