

QTBrowser

Superimposing arbitrary plots
and accessing DQM GUI files

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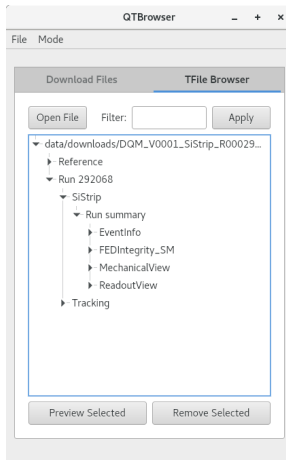
December 1, 2017

Motivation

- ▶ Limitations of DQM GUI
 - ▶ GUI only allows superimposing / overlaying the same plots across different runs.
 - ▶ Superimposing arbitrary plots would be useful.
- ▶ Ease of Use
 - ▶ Downloading files through the DQM GUI is more complicated than it has to be.
- ▶ Make macros reusable
 - ▶ There's a lot of ROOT macros written and then discarded (and probably rewritten multiple times by different people).
 - ▶ QTBrowser offers a way to make your macros available to others through plugins.

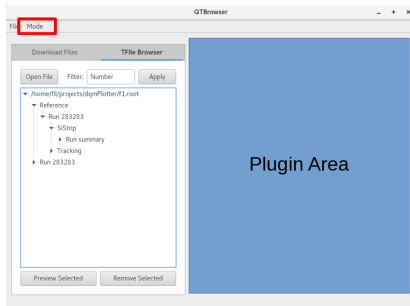
QTBrowser - File Browser

- ▶ Can open .root files, and search within them for plots.
- ▶ Different modes which provide functionality when plots are selected.



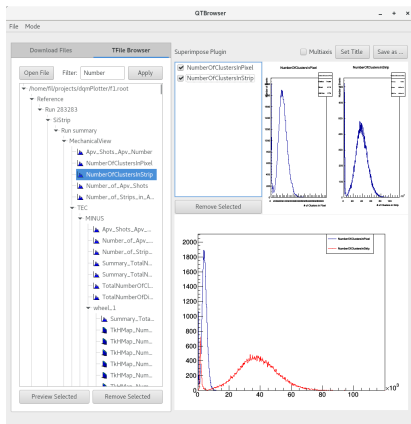
QTBrowser - Modes

- ▶ Current modes:
 - ▶ Superimpose
 - ▶ Concatenate
 - ▶ Fit
- ▶ Clicking on one of the modes extends the area.
- ▶ Items that are now clicked in the file browser will be sent to the plugin, which can perform its task.



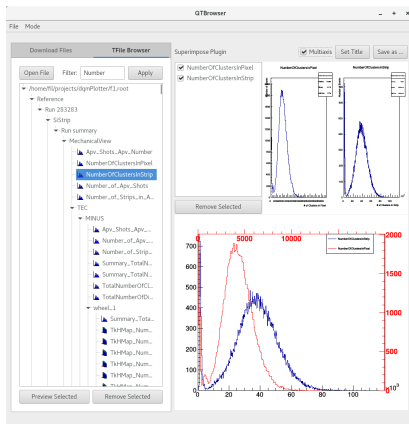
Modes - Superimpose

- ▶ Double clicking items in the file browser adds them to the plugin.
- ▶ The selected plots are drawn in the top right, the superimposition in the bottom panel.
- ▶ There is no limit on how many plots can be superimposed.

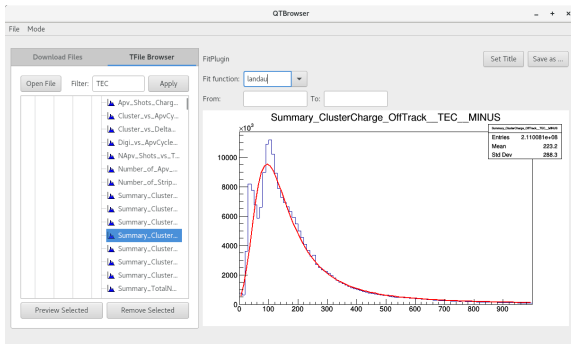


Modes - Superimpose

- ▶ Double clicking items in the file browser adds them to the plugin.
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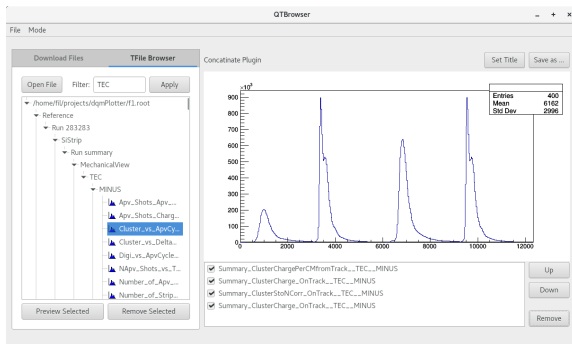


Modes - Fit



Fitting distributions to plots.

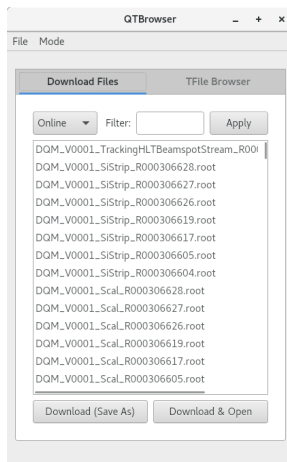
Modes - Concatenate



Concatenating plots

QTBrowser - Downloader

- ▶ Browse Online, Offline, Relval files from DQM GUI.
- ▶ Download files with a single click.
- ▶ Valid grid certificate needed.
- ▶ Keeping index of files up to date; still work in progress (as of 30.11.2017).



How to run it

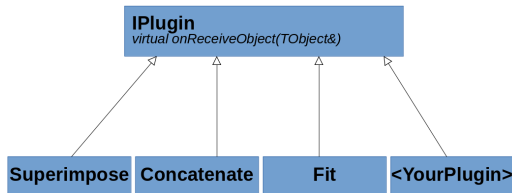
Remotely on vocms61:

- ▶ `ssh cctrack@vocms061.cern.ch -Y`
- ▶ `cd /data/users/filic/`
- ▶ `cd CMSSW_9_4_0 && cmsenv && cd ..`
- ▶ `./updateOnlineIndex && ./startQTBrowser`

Locally:

- ▶ Currently you will need to compile it
- ▶ Linux and macOS: instructions in the README.
- ▶ Windows: work in progress. (as of 1.12.2017)

Sidenote - creating new pulgins



- ▶ It is straight forward to add your own plugin.
- ▶ All that needs to be done is deriving from IPlugin and implementing the virtual functions for your plugin to receive TObjects from the file browser.

- ▶ Repository: <https://github.com/imKuehlschrank/QTBrowser>
- ▶ Suggestions/Feedback: filip.ilic@cern.ch