

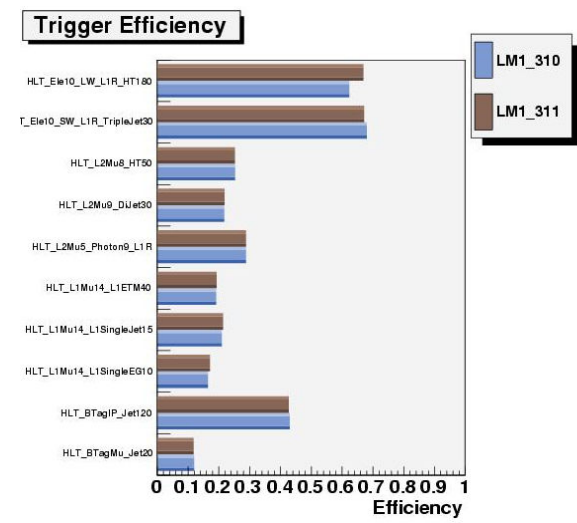
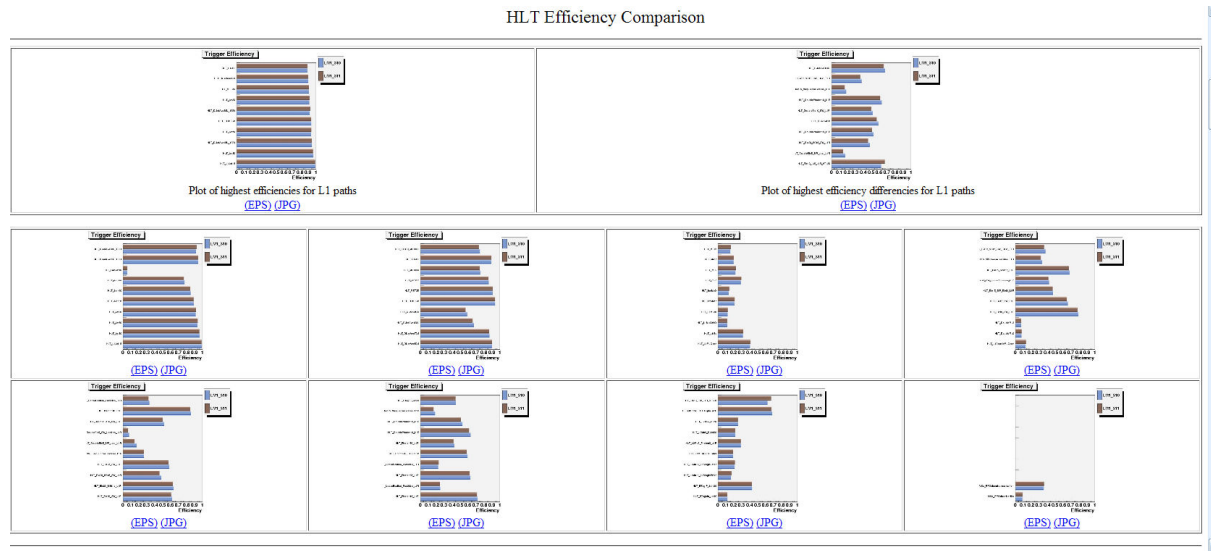
Trigger Software Validation and DQM Development in SUSY and Exotica Analysis

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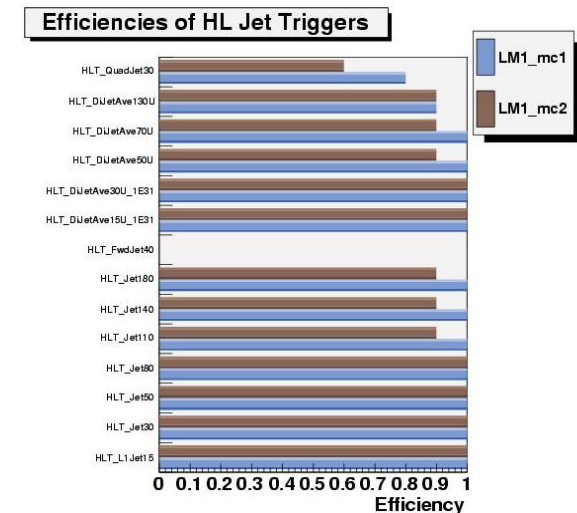
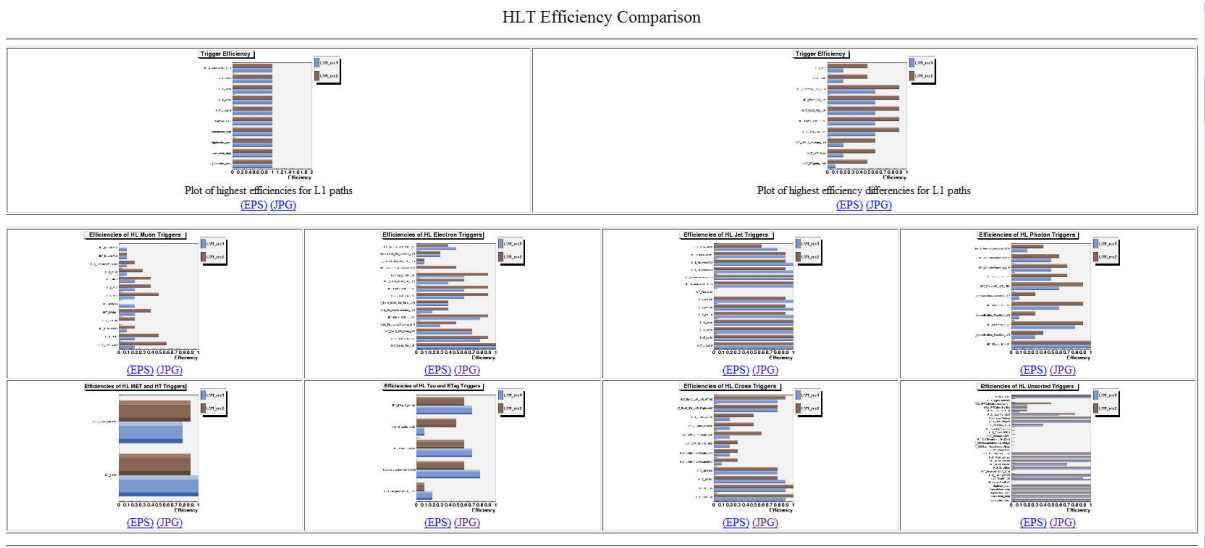
Trigger Software Validation

- The motivation is to check the trigger performance for various releases of CMSSW software
 - SUSY/Exo analysis involves many trigger paths
 - This is accomplished by monitoring trigger efficiencies for all the paths
- GUI is created that gives the results of the comparisons of triggers using a framework developed exclusively for SUSY/Exo
- Test is performed on two different SUSY scenarios and an Exotica one



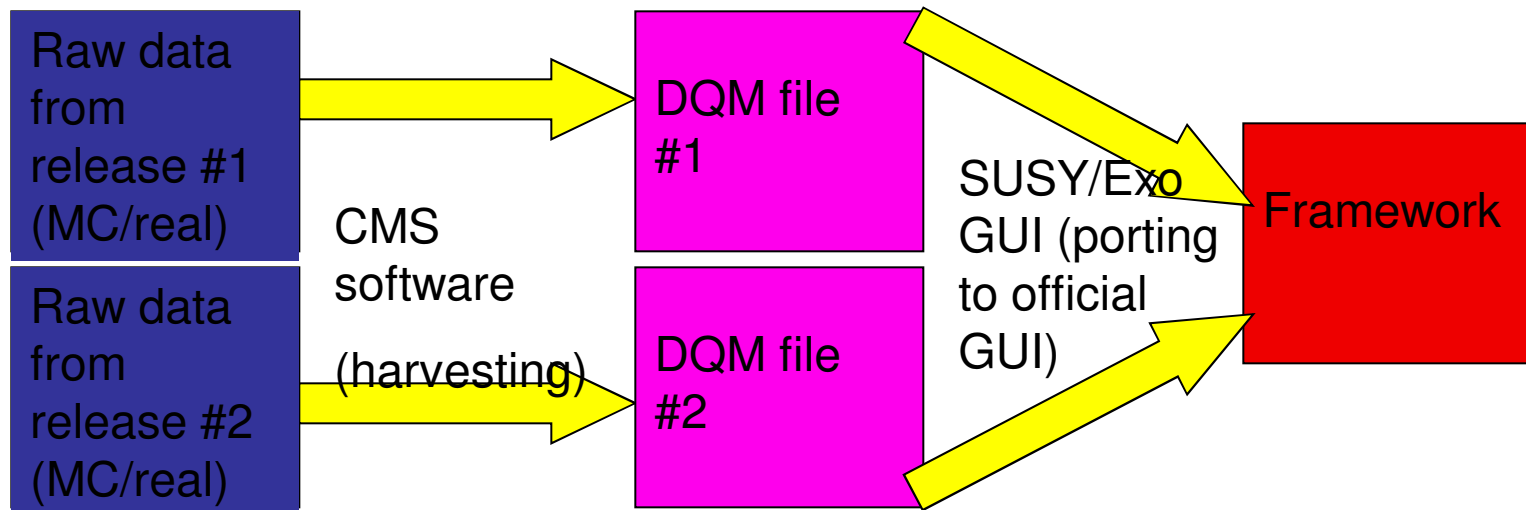
New Features in SUSY/Exo Framework

- Changes in the framework code have resulted in
 - Plots sorted by trigger-type
 - Plots ordered with respect to discrepancy (in progress)
 - Selection on the final states



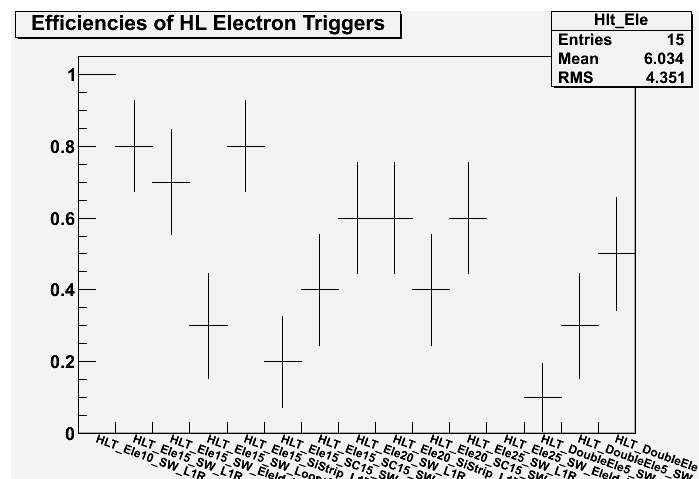
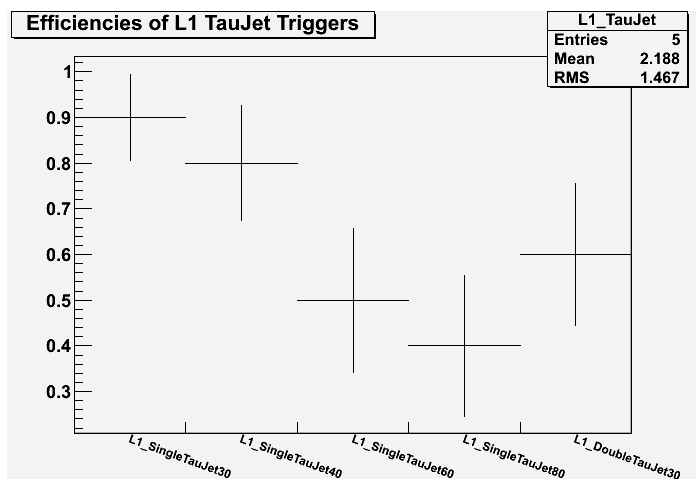
CMS Framework

- A push has been made to unify all CMS validation software under one common framework
 - Same software as DQM is used
- The CMS framework does not have all the desired features of the SUSY/Exo framework, so we will use both
 - Developing the SUSY/Exo GUI
 - Implementing features in the SUSY/Exo framework into the official CMS DQM GUI



Changes

- The CMS framework is set up such that all desired features must be implemented at the harvesting stage
- Plots are sorted by trigger-type in the harvesting code and are ordered in the SUSY/Exo framework code



From MC to Data

- We would like to use the package developed for software validation to monitor on real data the performance of triggers interesting for SUSY
- For MC data, the calculation is simple because the total number of events is known
 - $\text{Eff} = (\text{events passed by trigger}) / (\text{total events})$
- For real data, the total number of events is not known, so a reference point is needed
 - Temporarily, Hlt_ZeroBias trigger is used
 - Investigation is needed into using a reference point based on trigger-type