



Contribution ID: 61

Type: Poster

Tools for Trigger Rate Monitoring at CMS

Tuesday, August 22, 2017 4:20 PM (15 minutes)

In 2017, we expect the LHC to deliver an instantaneous luminosity of roughly $2.0 \times 10^{34} \text{ cm}^{-2} \text{ s}^{-1}$ to the CMS experiment, with about 60 simultaneous proton-proton collisions (pileup) per event. In these challenging conditions, it is important to be able to intelligently monitor the rate at which data is being collected (the trigger rate). It is not enough to simply look at the trigger rate; we need to know if what we are seeing is what we expect. We will present a set of software tools that have been developed to accomplish this. The tools include a real-time component - a script (run in the CMS control room) that monitors the rates of individual triggers during data-taking, and activates an alarm if rates deviate significantly from expectation. Fits are made to previously collected data and extrapolated to higher pileup. The behavior of triggers as a function of pileup is then monitored as data is collected - plots are automatically produced on an hourly basis and uploaded to a web area for inspection. We will discuss how this same set of tools is also used offline in data certification, as well as in more complex offline analysis of trigger behavior.

Primary authors: SMITH, Geoffrey Nathan (University of Notre Dame (US)); WIGHTMAN, Andrew (University of Notre Dame (US)); MUELLER, Charles Nicholas (University of Notre Dame (US))

Presenter: SMITH, Geoffrey Nathan (University of Notre Dame (US))

Session Classification: Poster Session

Track Classification: Track 2: Data Analysis - Algorithms and Tools