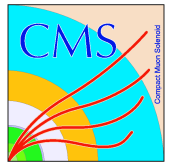
iCSA08 Workflow and Performance Metrics
Muon-HIP Alignment

Jim Pivarski, Alexei Safonov, Károly Banicz*

Texas A&M University, *FermiLab

28 March, 2008

The twiki page



- Filled in iCSA08 muon alignment twiki page
  https://twiki.cern.ch/twiki/bin/view/CMS/CSA08AlignMuon
  - Defined iCSA08 workflows
  - Listed event samples, step-by-step procedures, priorities
  - Commented on validation and monitoring
- This talk will be a short summary of the above

The workflows

- Whole muon system "baseline" alignment
  - align individual chambers relative to the tracker (high-p_T tracks)
  - minimal goal (not delivering this would be failure)
- CSC chambers-in-ring alignment
  - two stages: (1) align CSCs relative to each other in rings and (2) align rings relative to the tracker
  - step (1) is the data- and CPU-intensive step
  - special stream to deliver tracks with overlap hits, drawn from normal I.P. muons
  - new stream will be tested in 1_8_X pre-CSA
- CSC layer alignment
  - align layers relative to layer 1 in each CSC chamber
  - technique is similar to the above, but without overlap requirement (normal AlCa stream)
- CSC beam-halo alignment
  - two parts: chambers-in-ring and layer, like the above
  - technique is the same (or very similar); event samples are different
  - new triggers/streams not in pre-CSA; we'll need to test in parallel

Resources Needed

A little vague at the moment: the baseline procedure is the only one we know well.

Baseline requirements:

- half a million tracks (18 GB), with a filtered copy on T2_CH_CAF
- 50 CPUs for 10 hours
- 500 MB of AFS space (only 85 MB needs to be saved permanantly)

Each of the other workflows will have similar requirements (including a processed copy of input data on T2_CH_CAF)

April is devoted to studying each of the other workflows in detail; we can have quantitative estimates by the end of the month

Monitoring

- Before alignment: put MuonAlignmentAnalyzer in the production jobs?
- During alignment: 500 MB of diagnostics plots that we can look at in an emergency
- Just after alignment: 85 MB of summary residuals and database geometry comparisons
- Just after that: run a small sample through MuonAlignmentAnalyzer
- In the re-reconstruction: put MuonAlignmentAnalyzer in the production jobs?

Output format

- Database records in an SQLite file
- or is direct writing-to-database a goal of this exercise?

Conclusions

Four workflows considered now, one is essential

The others are in development, and will be much better understood by the end of April

Much more detail on twiki page