Data Selection Plots for DQM Discussion

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DQM Looks (mostly) at Data to be Written to Disk

- What parameters summarise the performance of the data selection?
  - Monitoring plots
- What parameters are of interest for advanced analysis?
  - Monitoring results

…while operational monitoring (through CCM) gets information from intermediate pieces…

Nevertheless data quality can be affected by earlier stages of data selection (e.g., TA output)

What from Data Selection Tells us in "realtime" about *Data Quality?*

"Everything affects data quality." **<-- Not helpful**.

But:

- Quality is affected by unexpected changes to the detector
  - Calibration drifts
  - Electron lifetime
  - Instrumental problems (e.g., HV streamers)
  - Background changes (e.g., Rn increase)
  - Beam changes
  - Things that break (wires, FEMBs, timing, HV, etc.)

Practically speaking, we can ***monitor*** these via high-level (human-understandable) metrics

On Data Written to Disk

- Histogram of trigger types (HSI, random, CRT, beam Ks, beam es, etc.)
- Histogram of time distribution of triggers (relative to beam but also TOD)
- APA(CRP)/wire/x position of triggered events
- PDS occupancy for triggered events
- APA(CRP)/wire of trigger primitives
- Distributions of triggered event parameters
  - SADC, N_{adj}, max ToT---whatever trigger(s) are cutting on
    - Distinct version for pre-scaled accepted events
      - Re-run TA/TC/TD algorithm on pre-scaled events?
    - Distinct version for randoms
- Distribution of triggered event physical parameters –
  - track “length”?
  - “Energy”
  - Direction??
  - PID ????

On Upstream Parts of the Chain?

Nominally Operational Monitoring looks at this, but…

“Everything affects data quality.”

Are there earlier places in the chain we should monitor?

- Rate of TAs below TC threshold
- Distribution of cluster sizes per time slice
- Histogram(s) of all TAs that do not get promoted to TCs
- Histogram(s) of all TCs that do not become TDs
- ?