Data Quality Monitoring of the CMS Silicon Strip Tracker Detector

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Data Quality Monitoring (DQM) is being built to provide complete and coherent monitoring data (online and offline) at low latency, to ensure the optimal working of the hardware and software and to certify the quality of the data for analysis in an efficient way.

WHAT DQM MONITORS (Monitor Elements, ME):
- RAW data (readout and unpacking errors)
- DIGIS and Cluster (related or not to a track)
- track parameters
- Hit residuals

The data quality is assessed through histograms (about 300,000 histograms defined). They are organized in hierarchical tree like folder structure reflecting the tracker geometry and are filled accessing information from data at various levels of data reconstruction. Finally they are stored in Root files.

HOW DQM MONITORS:
- Producers (source) book and fill ME
- Consumers (client) access ME and produce summaries to merge informations from each histogram of each module

Quality tests: compare with reference histograms or reference values (mean, rms etc.) generate 3 (adjustable) alarm levels

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