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Online Monitoring and online calibration/reconstruction for the PHENIX experiment

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The PHENIX experiment consists of many different detectors and detector types, each one with its own needs concerning the monitoring of the data quality and the calibration. To ease the task for the shift crew to monitor the performance and status of each subsystem in PHENIX we developed a general client server based framework which delivers events at a rate in excess of 100Hz.

This model was chosen to minimize the possibility of accidental interference with the monitoring tasks themselves. The user only interacts with the client which can be restarted any time without loss or alteration of information on the server side. It also enables multiple people to check simultaneously the same detector - if need be even from remote locations. The information is transferred in form of histograms which are processed by the client. These histograms are saved for each run and some html output is generated which is used later on to remove problematic runs from the offline analysis. An additional interface to a data base is provide to enable the display of long term trends.

This framework was augmented to perform an immediate calibration pass and a quick reconstruction of rare signals in the counting house. This is achieved by filtering out interesting triggers and processing them on a local Linux cluster. That enabled PHENIX to e.g. keep track of the number of J/Psi's which could be expected while still taking data.

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