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Online monitor framework for network distributed data acquisition systems

Data acquisition (DAQ) systems in recent HEP experiments consist of sub systems distributed in the local area networks (LANs). Therefore it is required to handle with the monitoring information which is also distributed in the LANs. We developed a new software framework for online monitoring, which collects distributed information and achieves easy access to the information far from DAQ systems via internet. The framework consists of three parts, DAQ-subsystems, “Monitor server” and “Monitor viewer”. Each DAQ-subsystem converts the monitored information to histograms and handles with them as an object named “Histogram package”, a collection of histograms. Monitor server collects and transfers the histogram packages to the viewers. Monitor Viewers creates graphical plots on their GUI windows. We also developed two types of viewers. One is a java application, which can achieve real time monitoring by connecting with Monitor server directly. The other is a web application works on web browsers with Ajax and HTML5 technologies. GUIs of each viewer are generated automatically by XML based configuration files and therefore DAQ developers can create viewer plots with modifying the viewers. We will present the detail structure of the online monitor framework with some application examples of the Double Chooz reactor neutrino experiment.

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