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Real-time web display in the MIDAS DAQ software

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Modern data acquisition systems have the common need of near real-time visualization of parameters and slow control variables of an experiment. This includes the display of values in text format but also in various graphs including trend lines vs. time. The MIDAS DAQ system which is used world-wide in various experiments (TRIUMF, PSI, CERN, T2K, ...) has recently been extended to allow such visualizations through a web browser. This extension uses modern web technologies such as AJAX, JSON, Canvas and Websockets included in HTML5 to render graphics and text in any browser including mobile devices. The advantage over native graphics packages such as QT is the fact that the graphics application does not have to be installed locally, but it is obtained from the experiment through the web link automatically. Updates of the application are therefore instantly available by all people monitoring an experiment. This is only possible since today's browsers can render graphics in JavaScript almost as fast as native application by accessing the GPU directly, allowing millions of data points per second to be rendered with minimal CPU load.

This paper will explain the technology and optimizations made to easily allow any graphical representation in the MIDAS DAQ framework, and how to use it for your own experiment. Experiences made with this system for remote monitoring of experiments across several continents will be shown.

Minioral

Yes

IEEE Member

Yes

Are you a student?

No

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