21st International Conference on Computing in High Energy and Nuclear Physics **CHEP2015** Okinawa Japan: April 13 – 17, 2015

Contribution ID: **458**   Type: **poster presentation**

Recent Developments in the Infrastructure and Use of artdaq

The artdaq data acquisition software toolkit has been developed within the Fermilab Scientific Computing Division, and it is being used by a growing number of high-energy and cosmology experiments. It currently provides data transfer, event building, run control, and event analysis functionality. The event analysis functionality is provided by the art framework, which has also been developed at Fermilab and which is used for offline reconstruction and simulation by many experiments at Fermilab. The format that is used to store the data is ROOT.

Recent enhancements to the toolkit include a custom vector class to improve the performance of buffer allocation, configurable options for dealing with back-pressure, and improved organization of the software packages that are part of the toolkit. The enhancements that are currently in development include the addition of web-based control and monitoring interfaces, improved monitoring of DAQ system performance, and improved handling of online monitoring data.

Artdaq is successfully being used for the DarkSide-50, LArIAT, LBNE 35 ton prototype, and Mu2e experiments. In addition, a demo system has been developed so that prospective and new users can gain experience in using the toolkit to develop their own DAQ system.

We will describe the functionality that is currently available in the toolkit, the advantages that are gained by its use, our experience in deploying it to experiments, future plans, and opportunities for integrating with commercial off-the-shelf hardware modules.

Author: BIERY, Kurt (Fermi National Accelerator Lab. (US))

Co-authors: GREEN, Christopher (Department of Physics); FLUMERFELT, Eric (Fermilab); LUKHANIN, Gennadiy (Fermi National Accelerator Lab. (US)); KOWALKOWSKI, Jim (Fermilab); Dr FREEMAN, John (Fermilab); Dr PATERNO, Marc (Fermilab); RECHENMACHER, Ronald (Fermi National Accelerator Lab. (US))

Presenter: BIERY, Kurt (Fermi National Accelerator Lab. (US))

Track Classification: Track1: Online computing