

Meeting Summaries

March 14, 2012

Single Event Display

Hall-B has developed the bCNU framework for building single event viewers. This has been used to develop a fairly mature event viewer for CLAS12. The viewer is at a stage where it can be used to aid in development of reconstruction code for CLAS12.

Work began about 1.5 years ago to develop an event viewer for Hall-D using the bCNU framework. The Hall-D viewer (ded) has been worked on primarily by summer students. Plans are in place to continue the development of the ded viewer over the summer of 2012. In the meantime, Hall-D continues use of its ROOT-based viewer for code development.

Monitoring Histograms

Halls A and C have a solution well suited to their needs but does not seemed well matched for operations in Halls B and D.

Hall B has successfully used the "mini-hbook" system for several years with CLAS running. The system produces histograms on the front end modules and transports them via the data stream. It is lightweight and works well for that purpose.

Hall D has developed the ROOTSpy system designed to work in a distributed environment and accommodate higher levels of reconstruction. It was designed to accept histograms in various formats. The mini-hbook format will be added to ROOTSpy to allow histograms extracted from the data stream to be broadcast in such a way that ROOTSpy can display them.

Hall-D will investigate deploying the mini-hbook system to monitor aspects of the front end during and after commissioning. Sergey Boiarnov will provide David Lawrence with the mini-hbook format and they will work together on incorporating it into ROOTSpy by the end of 2012.

Tracking

Halls B and D

Hall-D has a fairly mature tracking software package. Some areas need more work, but the general structure is in place. Specialization of the code for Hall-D permeates throughout arising both from geometry and the underlying framework. Refactoring the existing code to make use of a generic framework would be time consuming with the level of benefit to either hall being unclear.

Hall B has original tracking code written in C (SOCRAT) and an SOA package derived from that (SOT). It has also begun development on a completely new tracking software package. Pieces of the new package will be used to replace pieces of SOT as needed to make the tracking more robust and maintainable. The authors of the new code have been in close communication with the authors of the Hall-D tracking software. The Hall-D repository is publicly accessible. Existing pieces, most notably the helical fitters, have been made available and discussed. We plan to maintain close communication as development in both halls continues.

JANA and CLARA

Halls B and D

CLARA represents a new paradigm in event-based reconstruction code by implementing a Services Oriented Architecture. There are several potential benefits to this. These include cloud-like computing, language independence, and some level of robustness from services residing in separate address spaces.

JANA is a more traditional event-based reconstruction framework. It is written in C++ and designed to have all reconstruction packages reside in the same address space to optimize data transport. Given the experience in the community, it presents a low risk, but does not take advantage of modern robust, high bandwidth network connections to clouds of available computers.

Hall-D has put considerable effort into developing reconstruction software within the JANA framework. Refactoring to use any other framework would be costly in time and manpower.

Similarly, considerable effort has been made in Hall-B to write reconstruction code in JAVA which is incompatible with the JANA C++ framework.

It is possible that the two could be combined in a single application allowing one to access missing features that the other provides. There is intention to explore this further, but definite plans are not in place at the moment.