

# CLAS12 Software Readiness Preparations

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# CLAS12 Software Preparations

- The June 7-8 2012 review recommendations and comments to the CLAS12 software group involved the following points:
  - The innovation of ClaRA framework and the need for involvement and “buy-in” of the user community.
  - The necessity to run large scale stress tests to validate the robustness of the framework and the IO capability.
  - Consideration of ROOT as an output file format.
- The CLAS12 software group is taking steps to address each one of these recommendations by putting efforts and resources into the areas of:
  - Education,
  - ClaRA performance and transient data format evaluations,
  - Generation 3 tracking code development,
  - Use of collaboration resources.

# Education

- The Hall B software group is conducting regular workshops to educate CLAS12 software users and developers to write applications within the ClaRA framework.
- These hands-on workshops are teaching developers how to connect the basic event reconstruction building blocks (e.g. DC cluster reconstruction) – the services – into an application using the ClaRA designer GUI.

# Data Challenge

- Following the June review, data challenge tests were conducted with the Generation 2 track reconstruction application (SOT).
- During these tests, it was discovered that the current data format used as IO (i.e. EVIO) has limitations as a transient data format which prevents scaling with the number of nodes.
- We are developing a new transient data format (iG5) . The C++ implementation of iG5 is complete and the Java API is being written.
- An interface to convert the initial data format from EVIO to iG5 will be written, so that all event reconstruction data passing will be done with iG5. Following this implementation, stress tests will be re-conducted with Generation 3 tracking code.

# Current Code Development Efforts

- The CLAS12 software group is currently focusing its efforts on the redesign and development of Generation 3 tracking (TRAC).
- The focus is to develop code based on the guidelines of Service Oriented Architecture, modularity and maintainability.
- The software group will supply the output of the event reconstruction as ROOT files.
  - The ClaRA framework is agnostic to data format persistency and hence a simple converter can be written from any output data format (EVIO or IG5) to a ROOT format.

# Use of Collaborative Resources

- The involvement of the user community in software development is through:
  - MOUs,
  - Service work committee who finds collaborators suitable to contributing to a particular software task.