20th International Conference on Computing in High Energy and Nuclear Physics (CHEP2013)

Contribution ID: **287** Type: **Poster presentation**

A tool for Conditions Tag Management in ATLAS

Monday, 14 October 2013 15:00 (45 minutes)

ATLAS Conditions data include about 2 TB in a relational database and 400 GB of files referenced from the database. Conditions data is entered and retrieved using COOL, the API for accessing data in the LCG Conditions Database infrastructure. It is managed using an ATLAS-customized python based tool set.

Conditions data are required for every reconstruction and simulation job, so access to them is crucial for all aspects of ATLAS data taking and analysis, as well as by preceding tasks to derive optimal corrections to reconstruction. Ensuring that the optimal alignment and calibration information is used in the reconstruction is a complex task: variations can occur even within a run and independently in time from one subsystem to the other. Optimized sets of conditions for processing are accomplished using strict version control on those conditions: a process which assigns COOL Tags to sets of conditions, and then unifies those conditions over data-taking intervals into a COOL Global Tag. This Global Tag identifies the set of conditions used to process data so that the underlying conditions can be uniquely identified with 100% reproducibility should the processing be executed again.

Understanding shifts in the underlying conditions from one tag to another and ensuring interval completeness for all detectors for a set of runs to be processed is a complex task, requiring tools beyond the above mentioned python utilities. Therefore, a Java/php based utility called the Conditions Tag Browser (CTB) has been developed. CTB gives detector and conditions experts the possibility to navigate through the different databases and COOL folders; explore the content of given tags and the differences between them, as well as their extent in time; visualize the content of channels associated with leaf tags. This report describes the structure and implementation of the CTB, demonstrates its use during LHC Run 1, and describes plans for expanding its functionality in preparation for LHC Run 2.

Summary

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Session Classification: Poster presentations

Track Classification: Data Stores, Data Bases, and Storage Systems