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Belle II Conditions Database Overview

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The Belle II experiment at KEK is preparing for taking first collision data in early 2018. For the success of the experiment it is essential to have information about varying conditions available to systems worldwide in a fast and efficient manner that is straightforward to both the user and maintainer. The Belle II Conditions Database was designed to make maintenance as easy as possible. To this end, a HTTP REST service was developed with industry-standard tools such as Swagger for the API interface development, Payara for the Java EE application server, and the Hazelcast in-memory data grid for support of scalable caching as well as transparent distribution of the service across multiple sites.

On the client side, the online and offline software has to be able to obtain conditions data from the Belle II Conditions Database in a robust and reliable way under very different situations. As such the client side interface to the Belle II Conditions Database has been designed with a variety of access mechanisms which allow the software to be used with and without internet connection. Different methods to access the payload information are implemented to allow for high level of customization per site and to simplify testing of new payloads locally.
Changes to the conditions data are usually handled transparently but users can actively check whether an object has changed or register callback functions to be called whenever a conditions data object is updated. In addition a command line user interface has been developed to simplify inspection and modification of the database contents.

This talk will give an overview the design of the conditions database environment at Belle II on the server and client side and report about usage experiences and performance in large-scale Monte Carlo productions.

Primary authors: RITTER, Martin; WOOD, Lynn (Pacific Northwest National Laboratory, USA)

Co-authors: KUHR, Thomas; BRACKO, Marko (Jozef Stefan Institute (SI)); PULVERMACHER, Christian (KIT); ELSETHAGEN, Todd (Pacific Northwest National Laboratory); FOX, Kevin (PNNL); HALL, Jeter (Pacific Northwest National Laboratory); RAJU, Bibi (Pacific Northwest National Laboratory); SCHRAM, Malachi; STEPHAN, Eric (Pacific Northwest National Laboratory)

Presenter: RITTER, Martin

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