Contribution ID: **440**　　　　　　　　　　　　　　　　　　　　　　　Type: **Poster**

Python object-oriented framework for consuming, manipulating and releasing non-event data for the CMS alignment and calibration.

Thursday, 13 October 2016 16:30 (15 minutes)

The Alignment, Calibrations and Databases group at the CMS Experiment delivers Alignment and Calibration Conditions Data to a large set of workflows which process recorded event data and produce simulated events. The current infrastructure for releasing and consuming Conditions Data was designed in the two years of the first LHC long shutdown to respond to use cases from the preceding data-taking period. During the second run of the LHC, new use cases were defined.

For the consumption of Conditions Metadata, no common interface existed for the detector experts to use in Python-based custom scripts, resulting in many different querying and transaction management patterns. A new metadata consumption framework has been built to address such use cases: a simple object-oriented tool that detector experts can use to read and write Conditions Metadata when using Oracle and SQLite databases, that provides a homogeneous method of querying across all services.

The tool provides mechanisms for segmenting large sets of conditions while releasing them to the production database, allows for uniform error reporting to the client-side from the server-side and optimizes the data transfer to the server. The architecture of the new service has been developed exploiting many of the features made available by the metadata consumption framework to implement the required improvements.

This paper presents the details of the design and implementation of the new metadata consumption and data upload framework, as well as analyses of the new upload service's performance as the server-side state varies.

Tertiary Keyword (Optional)

Secondary Keyword (Optional)

Data processing workflows and frameworks/pipelines

Primary Keyword (Mandatory)

Databases

Primary author:　DAWES, Joshua Heneage (University of Manchester (GB))

Presenter:　DAWES, Joshua Heneage (University of Manchester (GB))

Session Classification:　Posters B / Break

Track Classification:　Track 2: Offline Computing