

The ALICE Analysis Framework for LHC Run 3

Monday, July 9, 2018 11:15 AM (15 minutes)

The ALICE experiment at the LHC (CERN) is currently developing a new software framework designed for Run 3: detector and software will have to cope with Pb-Pb collision rates 100 times higher than today, leading to the combination of core Online-Offline operations into a single framework called O².

The analysis code is expected to run on a few large Analysis Facilities counting 20k cores and sustaining a 100 GB/s throughput: this requires a conjoint effort between the definition of the data format, the configuration of the Analysis Facilities and the development of the Analysis Framework.

We present the prototype of a new Analysis Object Data format based on timeframes and optimized for continuous readout. Such format is designed to be extensible and transported efficiently over the network. We also present the first iteration of the Analysis Framework, based on the O² Data Processing Layer and leveraging message passing across a topology of processes.

We will also illustrate the implementation and benchmarking of a compatibility layer designed to mitigate the transition from the current event-oriented analysis model to the new time-oriented one.

Finally, we will give a status report on the integration of the Analysis Framework and Analysis Facilities for Run 3 into our current organized analysis model.

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Session Classification: T5 - Software development

Track Classification: Track 5 –Software development