

ALICE O2 setup for TPC read-out tests for the LHC run 3

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Abstract:

ALICE (A Large Ion Collider Experiment) is one of the four big experiments at the Large Hadron Collider (LHC). For ALICE Run 3 there will be a major upgrade for several detectors as well as the compute infrastructure with a combined Online-Offline computing system (O2) to support continuous readout at much higher data rates than before (3TB/s). The ALICE Time Projection Chamber (TPC) is the main contributor to the data volume which is read out via the Common Readout Unit (CRU).

For the first read-out test of a complete TPC inner read-out chamber (IROC) in the beginning of 2018 and the following tests of a complete TPC sector end of Q2 2018 we build an O2 prototype system using the O2 software stack which is currently developed for LHC run 3. The setup consists of 5 First-Level-Processing servers (FLPs) with two CRUs each as input nodes and 2 Event-Processing-Nodes (EPNs). With this test setup we can evaluate the feasibility of the planned software tools on a small scale as well as the read-out with the O2 processing and analysis framework. During the long shutdown this setup will be extended for pre-commissioning tests of the upgraded TPC detector.

We give a summary of the deployed test setup for the TPC as well as the experiences so far and an outlook of the future steps towards the final O2 system.

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