

podio - latest developments and new features of a flexible EDM toolkit

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Creating efficient event data models (EDMs) for high energy physics (HEP) experiments is a non-trivial task. Past approaches, employing virtual inheritance and possibly featuring deep object-hierarchies, have shown to exhibit severe performance limitations. Additionally, the advent of multi-threading and heterogenous computing poses further constraints on how to efficiently implement EDMs and the corresponding I/O layer. podio is a c++ toolkit for the creation of EDMs with a fast and efficient I/O layer using plain-old-data (POD) structures wherever possible. Physicist users are provided with a high-level interface of lightweight handle classes. The podio code generator that produces all the necessary c++ code from a high-level description in YAML files has recently been completely reworked to improve maintainability and extensibility. We will briefly discuss the new implementation and present, as a first use case, how it has been used to introduce an additional I/O backend based on SIO, a simple binary I/O library that is also used in LCIO. We will further discuss our first implementation of providing access to metadata, i.e. data that does not fit into the EDM itself. Finally, we will show how all of these capabilities are put to use in EDM4hep, the EDM for the Key4hep project.

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