



Contribution ID: 29

Type: Mini Oral and Poster

ROOT-based general online data visualization system

Tuesday 23 April 2024 12:35 (20 minutes)

The online data visualization system is an essential component of the data acquisition system, delivering swift, efficient, and comprehensive real-time monitoring for detectors and readout electronics. Simultaneously, ROOT, an open-source software framework for data analysis in high-energy physics, provides a variety of data analysis tools. Utilizing ROOT-based online histogram monitoring, researchers can efficiently analyze data in real-time and promptly detect potential anomalies. To minimize development costs and enhance deployment efficiency, a general online data visualization system based on ROOT has been designed and implemented. This system comprises configuration module, data readout and decoding module, and data display module. Each module offers specific interfaces for seamless integration and expansion. Additionally, the system takes advantage of file-based configuration management for minimal modifications when interfacing with different experiments. Currently, the system offers data source interfaces supporting Redis and Kafka, as well as histogram interfaces supporting one-dimensional and two-dimensional histograms. It has been successfully employed in joint testing for different projects, facilitating efficient and convenient data monitoring. The detailed design, implementation, and application of the system will be presented in this talk.

Minioral

Yes

IEEE Member

No

Are you a student?

Yes

Author: ZHANG, Shuihan (Institute of High Energy Physics, CAS)

Co-author: JI, Xiaolu (Institution of High Energy Physics, CAS)

Presenter: ZHANG, Shuihan (Institute of High Energy Physics, CAS)

Session Classification: Poster A

Track Classification: Data Acquisition and Trigger Architectures