



Contribution ID: 49

Type: Poster

The ATLAS Web Run Control system

Monday 11 March 2024 16:15 (30 minutes)

The ATLAS experiment at the Large Hadron Collider (LHC) operated very successfully in the years 2008 to 2023. ATLAS Control and Configuration (CC) software is the core part of the ATLAS Trigger and DAQ system, it comprises all the software required to configure and control the ATLAS data taking. It provides essentially the glue that holds the various ATLAS sub-systems together. During recent years, more and more applications in CC software were made available as web applications, thus making them easily available to experts for remote operations. The important missing part, however, was the main data taking control and monitoring application known as 'Igui' (Integrated Graphical User Interface), the front-end GUI tool used by operators in ATLAS Control Room to steer the data taking sessions.

This paper presents the new web application called 'WebRC' (Web Run Control), which provides Igui-like functionality of the data taking monitoring and control from a web browser, including: presenting the Run Control tree of all applications, dynamically updating their states, browsing their log files and messages stream, monitoring different system and trigger rates and detector busy information, thus allowing experts to promptly assess the state of the data taking and to investigate possible issues.

WebRC is built using Apache Wicket framework, and it is java-only back-end application. Important requirement which led to this choice was the necessity to closely integrate with CC services at the back-end side, with high performance and high scalability in mind. Another aspect is the long-term maintainability of the code, where in case of Wicket we benefit from not having to maintain any front-end JS library: on the browser side, a Wicket application is a plain HTML markup page, and all graphical elements management is fully done in Java on the server side. Wicket leverages the standard HTTP and AJAX technologies for achieving dynamic behavior of the application.

WebRC can operate in two modes, Control and Display, where the former allows to fully control user data taking session by sending control commands to the applications. Recent development includes integration of WebRC with CERN IT Open-ID authentication infrastructure, allowing the actions to be performed on behalf of the user authenticated in CERN SSO page in a web browser, thus enabling full user control over TDAQ data taking sessions, including changes in the DAQ configuration, sending of RC commands and starting and stopping the DAQ session processes. However this mode is disabled for operations in ATLAS, where WebRC is running in Display mode.

WebRC is widely used for monitoring of data taking sessions during ongoing Run 3 period, with dozens of users connecting daily.

Significance

This paper presents the new web application called 'WebRC' (Web Run Control), which provides Igui-like functionality of the data taking monitoring and control from a web browser, including: presenting the Run Control tree of all applications, dynamically updating their states, browsing their log files and messages stream, monitoring different system and trigger rates and detector busy information, thus allowing experts to promptly assess the state of the data taking and to investigate possible issues.

References

Experiment context, if any

ATLAS, CERN

Primary authors: KOULOURIS, Aimilianos (CERN); OH, Alexander (University of Manchester (GB)); KAZAROV, Andrei (University of Johannesburg (SA))

Presenter: KOULOURIS, Aimilianos (CERN)

Session Classification: Poster session with coffee break

Track Classification: Track 1: Computing Technology for Physics Research