

## Proposal to Implement Alarm System in Control System Studio Phoebus for the Hall C Neutral Particle Spectrometer

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This note proposes the implementation of the Control System Studio (CSS) Phoebus alarm system for the Hall C Neutral Particle Spectrometer.

Alarm systems of the Experimental Physics and Industrial Control System (EPICS) are client applications that monitor predetermined process variables (PVs) from input/output controllers. When a PV enters an alarm state, the alarm system graphical user interface (GUI) alerts the user of the alarm. The user can acknowledge the alarm and view additional details, such as the alarming PV value and alarm limits, as well as view guidance on how to respond to the alarm. Each alarm is logged and the GUI can be used to view the alarm history.

The EPICS Alarm Handler (ALH) is a standalone program based on the X-Windows system and the Motif widget toolkit. ALH is the first released version of the alarm system and is no longer updated or supported by the EPICS community. ALH is one of the EPICS alarm systems currently in use at Jefferson Lab.

The CSS Best Ever Alarm System Toolkit (BEAST) is part of an integrated collection of applications for EPICS control systems. Based on the Eclipse Integrated Development Environment and the Java Standard Widget Toolkit (SWT), BEAST alarm tools allow users to efficiently identify the sources of alarms, not straightforward in ALH.

The current variant of CSS, Phoebus, does not depend on Eclipse or SWT. CSS Phoebus has better performance than CSS Eclipse and hence is beneficial to both developers and users [1].

For developers, the build of the system that compiles and integrates the core and applications of Phoebus has been improved—simplified build is fast, easy, modular, and reproducible. Additionally, tests to check the build are integrated into Phoebus. These improvements increase system reliability and reduce complications encountered when updating the control system.

For users, applications in Phoebus have increased performance. For example, the alarm system user interface has been integrated into the applications tab in the Phoebus main window, Fig.1.

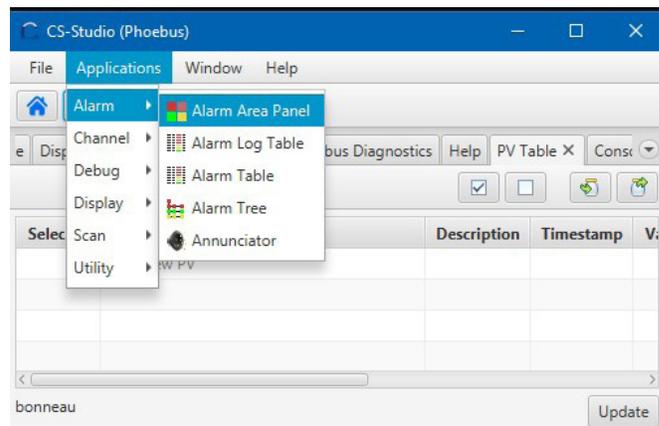


FIG. 1. Integration of alarm system in the Phoebus main menu.

To conclude, because of the increased performance and the improved system integration of the CSS Phoebus alarm system, DSG proposes the implementation of this system for the Neutral Particle Spectrometer.

- [1] [B. Eng, et al., Proposal to Upgrade the Experimental Physics and Industrial Control System's Graphical User Interface to Control System Studio Phoebus, DSG Note 2021-31, 2021.](#)