

# DSG-R&D Phoebus Meeting Minutes

Date: November 10, 2023

Time: 2:00 PM – 2:30 PM

Attendees: Peter Bonneau, Pablo Campero, Brian Eng, and Tyler Lemon

## 1. EIC-DIRC Phoebus alarm system startup procedure at Jlab – EPICS softIOc simulator

Peter Bonneau, Tyler Lemon

1. Discussed the testing of the Phoebus alarm system using softIOc laser interlock simulator
  - Verifies correct operation of alarm core programs using a host-based softIOc (Fig.1)
  - SoftIOc simulates the laser interlock signals from the cRIO
  - Tests the EPICS PVs programmed into the Phoebus alarm server
  - Verifies alarm generation when interlock PVs meet or exceed user-defined limits
  - Tests the Kafka Zookeeper and Kafka server message streaming programming
  - Load Phoebus user interface layout file:*EIC-DIRC-ALARM-SIMULATOR* (Fig. 2)
    - System loads and starts alarm system user interface applications (Fig. 3)

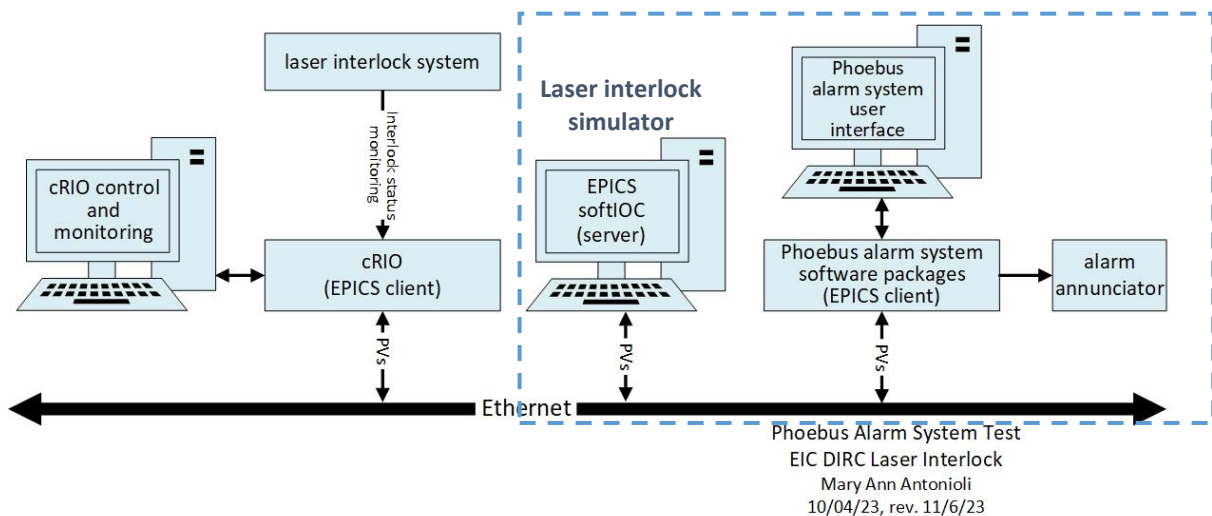


FIG. 1. Verification of Phoebus alarm system software using EPICS softIOc simulator

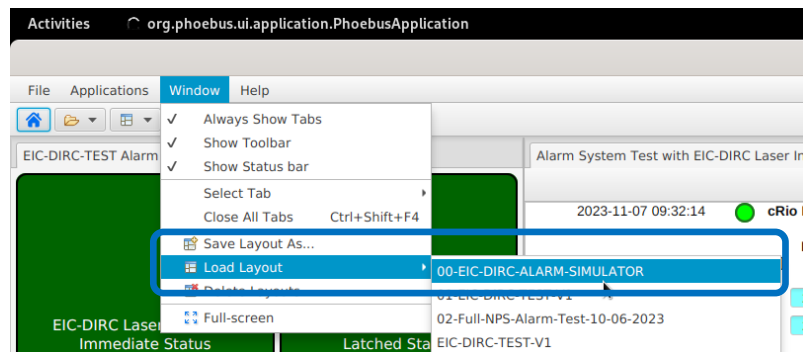


FIG. 2. Load the Phoebus layout: *EIC-DIRC-ALARM-SIMULATOR*

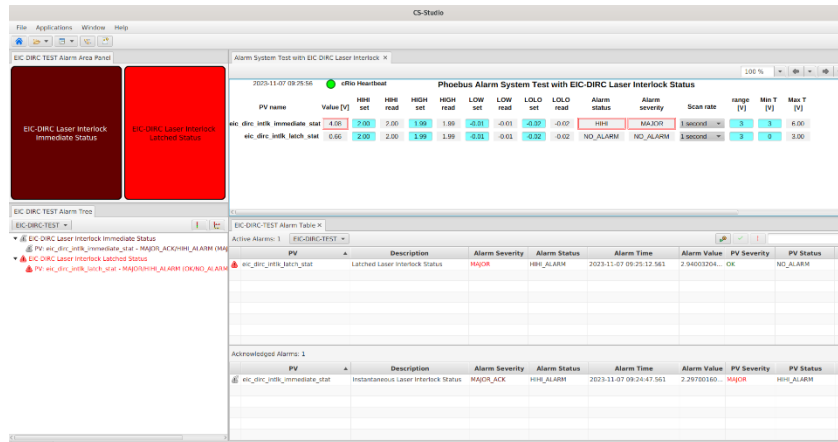


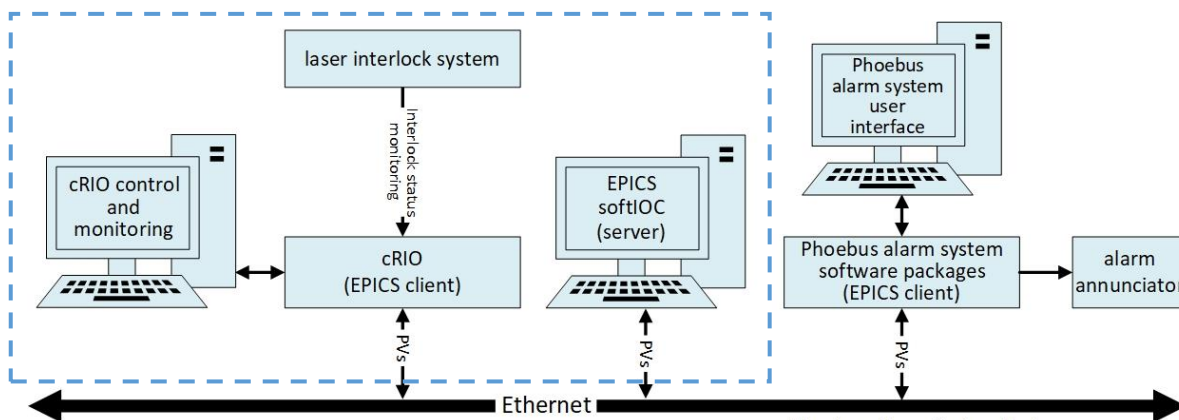
FIG. 3. Loaded Phoebus Alarm System User Interface applications

## 2. EIC-DIRC Phoebus alarm system startup procedure at Jlab – NI cRio Test

*Peter Bonneau, Tyler Lemon*

2. Discussed testing the NI cRio client communication with EPICS softIOC server (Fig. 4)

- The cRio EPICS client must successfully connect with the EPICS softIOC server *before* running any Phoebus alarm system software packages or Phoebus alarm user interfaces
- Confirm all Phoebus alarm system software packages (Zookeeper, Server, Phoebus alarm server, and alarm system user interfaces) have been terminated
- By default, Phoebus will automatically load the last user interface layout file
- Load Phoebus user interface layout file: *EIC-DIRC-cRIO-TEST* (Fig. 5)
- Start the cRIO readout of the laser interlock signals
- Start the EPICS softIOC (PV's sourced by cRIO, *not simulator*)
- Verify the laser interlock PV's are being sourced by cRIO via EPICS softIOC server user interface (Fig. 6)



Phoebus Alarm System Test  
EIC DIRC Laser Interlock  
Mary Ann Antonoli  
10/04/23, rev. 11/6/23

FIG. 4. Verification of NI CRIO EPICS client connection with EPICS softIOC server

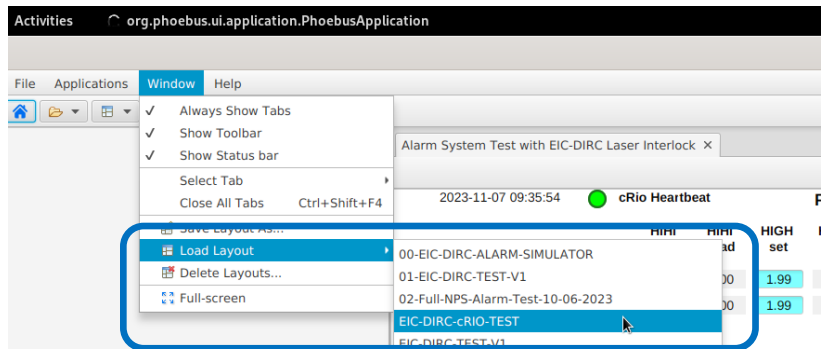


FIG. 5. Load the Phoebus Layout: *EIC-DIRC-cRIO-TEST*

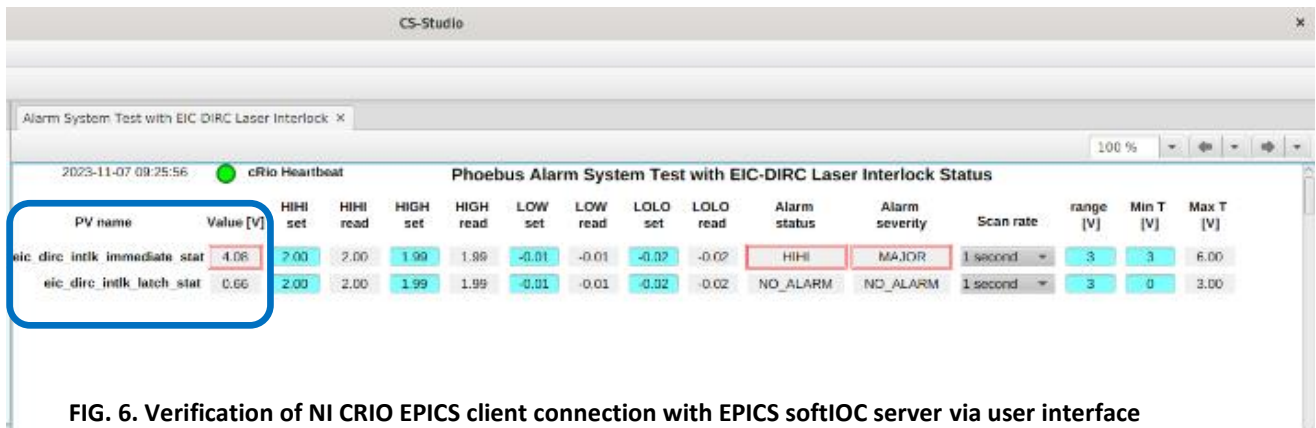


FIG. 6. Verification of NI CRIO EPICS client connection with EPICS softIOC server via user interface

### 3. EIC-DIRC Phoebus alarm system startup procedure at Jlab – cRIO & EPICS softIOC server

*Peter Bonneau, Tyler Lemon*

3. Discussed testing the alarm system using cRIO sourced laser interlock signals & softIOC
  - o Verifies correct operation of alarm core programs with cRIO laser interlock signals using the EPICS softIOC server (Fig.7)

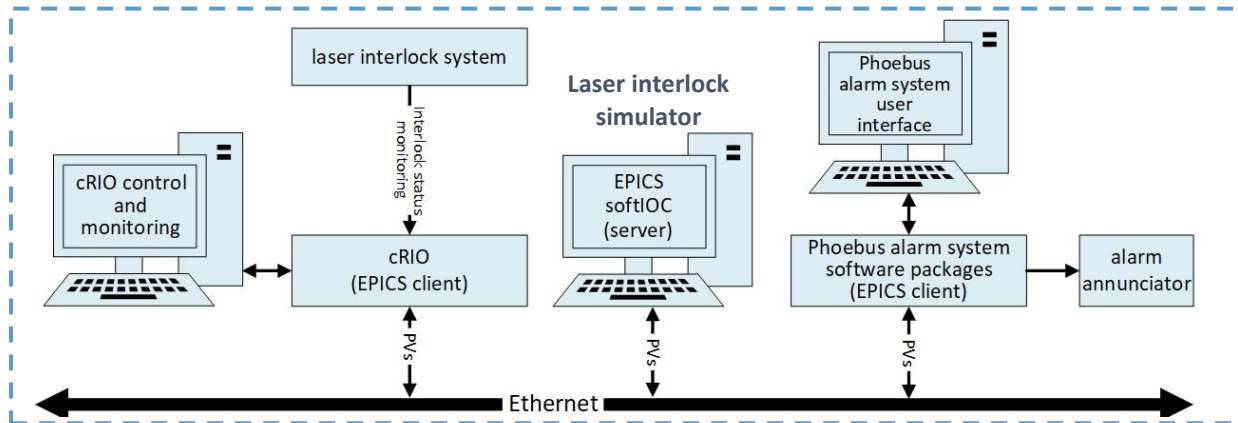


FIG. 7. Verification of Phoebus alarm system using cRIO sourced laser interlock signals & softIOC server

- Start cRIO acquisition and EPICS softIO server (PV's sourced by cRIO, *not simulator*). Alarm system will fail if the PVs are not available at startup.
- Startup (in sequence) the Phoebus alarm system software packages (Kafka Zookeeper, Kafka Server, and Phoebus alarm server).
- Load Phoebus user interface layout file: *EIC-DIRC-TEST-V1*
- Verify alarm generation when interlock PVs meet or exceed user-defined limits (Fig.8)

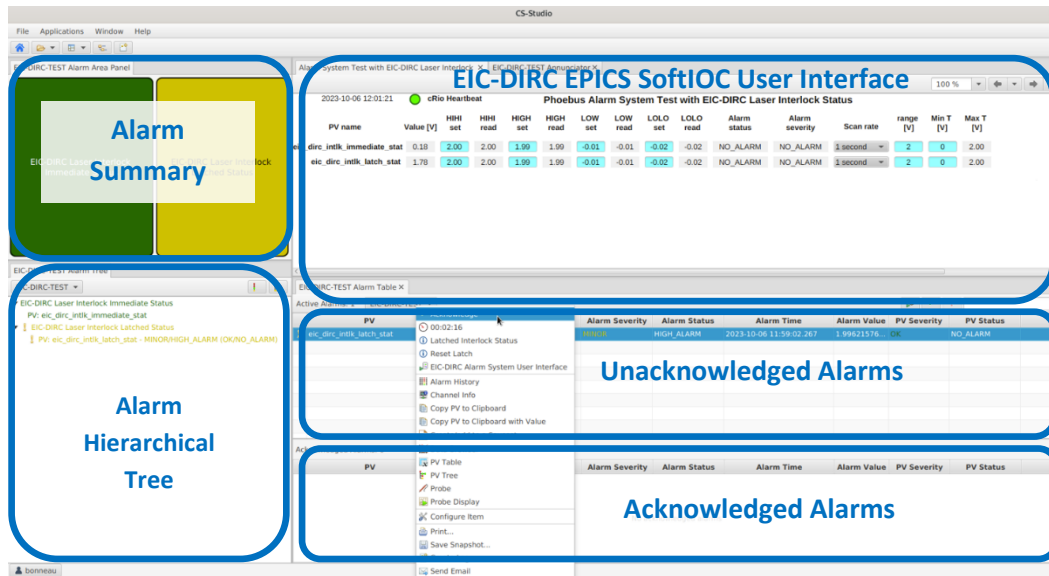


Fig 8. Phoebus User Interface for the Phoebus Alarm System Test with EIC-DIRC Laser Interlock

#### 4. Dual Phoebus Alarm System Kafka message streams

*Peter Bonneau, Aaron Brown*

- Discussed dual mode operation of Kafka message streams on test system
  - Would allow running of the NPS simulation or NPS test station and the new EIC-DIRC laser interlock alarms