

DSG-R&D Phoebus Alarm System Meeting Minutes

Date: March 17, 2023

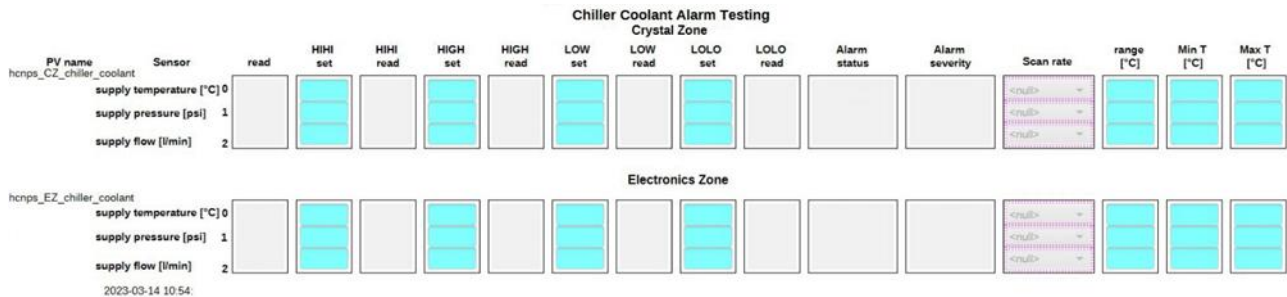
Time: 02:00PM – 02:45PM

Attendees: Mary Ann Antonioli, Peter Bonneau, Aaron Brown, Pablo Campero, Brian Eng, Tyler Lemon, and Marc McMullen

1. Phoebus screen development for alarm system

Mary Ann Antonioli, Peter Bonneau, and Aaron Brown

1. Reviewed nine Phoebus screens developed for the alarm system tests
 - Four crystal zone alarm test screens
 - Crystal zone cooling circuit alarm test screen
 - Detector frame alarm test screen
 - Hall environment alarm test screen
 - Electronics zone alarm test screen
 - Chiller coolant alarm test screen



2. Discussed using the Phoebus screen test program developed by Tyler
 - Tyler will look into whether the program can handle array PVs

2. CS-Studio Phoebus and support programs update

Peter Bonneau

1. Updating to Phoebus v4.7.1 in progress; rebuilding from source code
2. Requires updates to support programs

Program Name	Installed version	Upgraded to version	Program Function Summary
Apache Maven	3.8.6	3.9.0	Project management tool used to build Phoebus from source code
Kafka Zookeeper	2.13-3.2.0	2.13-3.3.1	Kafka cluster system management
Kafka server	2.13-3.2.0	2.13-3.3.1	Hosts the alarm system message streams
Kafka message monitoring	2.0	3.0	Monitors the health of the Kafka system
Alarm server	4.6.10	4.7.1	Monitors EPICS process variables (PVs) for alarm conditions via channel access. Stores alarm configuration settings for each PV.
Alarm server monitoring	2.0	3.0	Monitors the health of the alarm server
Alarm system user interface	4.6.10	4.7.1	User alarm monitoring and system configuration

3. Optional setup (Phoebus GitHub) now supports encryption and authentication for alarm system Kafka message streams

3. Alarm system softIOC development

Peter Bonneau and Aaron Brown

1. Reviewed EPICS 3.14 standard record support for alarms on array PVs
 - Tested EPICS 3.14 records
 - Reviewed alarm fields common to all EPICS records
 - ai – Analog input
 - aai – Array Analog Input
 - waveform – Waveform Record
 - aSub – Array Subroutine Record
 - compress – Compression Record
 - sub – Subroutine Record
 - calcout – Calculation Output Record
 - Reviewed record types not in EPICS base
 - Discussed write permissions to alarm fields
2. Discussed alternative softIOC implementations using existing arrays
 - subarray – Sub-Array Record
3. Discussed using arrays in RICH-II Hardware Interlock System
 - Arrays caused Boolean issues and were converted to individual ai PVs
 - The same may need to be done for NPS
4. Discussed design of softIOC
 - Implemented on dsg-c-linux1 Linux machine
 - Investigating methods (possibly Python or LabVIEW) of providing random numbers for PVs