

Mu2e Slow Control View from OTSDAQ

Antonio Gioiosa NEWS General Meeting November 4-5, 2019



The slow controls web-app is under development

(See the slow controls web-app Mu2e Document 26941-v1 for details)



By Control System overview Mu2e Document 9082-v1 Slow Controls Software: Purpose

□ Allow the user to monitor or interact with their own DAQ hardware: Able to see things such as:

Alarms, Warnings, Readouts, Timestamps, Status

Interact through a web interface that is:

Lightweight, User-Friendly, Plug n' Play, Customizable

By Control System overview Mu2e Document 9082-v1

Features

- □ Searchable library of widgets
- □ Template widgets for customization provided
- □ Quick-snap pages for easy viewing
- □ UI Scalability for high pixel screens or tvs
- □ Variable polling rates
- Drag n' Drop widgets
- □ Snap grid
- □ Infinite UI color customization
- □ Simple notes and names incorporated into settings of each widget
- □ Saved and loaded from the cloud

SLow Control System vs OTSDAQ data flow



Please follow the instruction on the EPICS otsdaq controls dashboard in the redmine wiki at:

https://cdcvs.fnal.gov/redmine/projects/mu2edcs/wiki/EPICS otsdag controls dashboard

First of all install the EPICS interfase in otsdaq: mrb gitCheckout -b develop -d otsdaq_epics http://cdcvs.fnal.gov/projects/components-epics

Configure the database

In the Configuration GUI of otsdaq desktop environment, make sure to add and fill the following tables in your Active Context:

- DesktoplconTable
- XDAQApplicationPropertyTable
- XDAQApplicationTable
- XDAQContextTable



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Basic Widget Mechanics (Daniel Parilla tutorial)

• All widgets have **<u>five required</u>** methods:

init(), getParameters(), setupPVs(), newWidget(), and newValue().

- There are two primary chains of events
 - Setup of the Widget (marked as #A on next slide)
 - Handling of new values (marked as #B on next slide)

Widget properties

- Dynamic sizing
- Proper handling of setups
- Value error, warning and alarm handling
- Disconnection handling

Basic Widget Mechanics (Daniel Parilla tutorial)



• widget utilizes the D3 JS library:

a versatile js library for visualizing data with HTML, SVG, and CSS with many examples

- Using this library requires minimum javascript knowledge to implement
- Possibility to add other libraries in the future

Use widgets in the Controls Dashboard

• Editor Panel





Use widgets in the Controls Dashnboard

1. A Chart loads in an array last **X** historical values from EPIS Archiver

Database

2. After a refresh time period a new value is added to the same array and showed in the chart togheter with the history



Use widgets in the Controls Dashboard

- A Chart loads in an array last **x** historical values from EPIS Archiver
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Use widgets in the Controls Dashboard

PV subscriptions to EPICS and refresh time are managed by a specialized



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Use widgets in the Controls Dashnboard



• File Panel

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Use widgets in the Controls Dashnboard

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Use widgets in the Controls Dashnboard

• Saved desktop Icon



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Conclusion - Next steps

- Manage and optimize the server timeout in EPICS PVs subscriptions
- Provide more widgets
- Adding JS libraries to improve widgets capability