OAK RIDGE National Laboratory

Display Builder Web Runtime

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Feb. 2022

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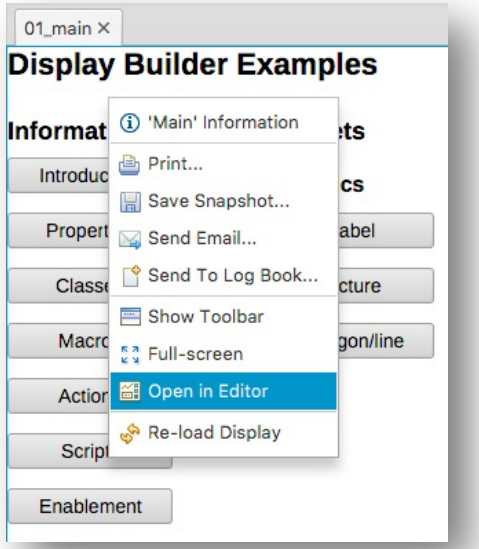
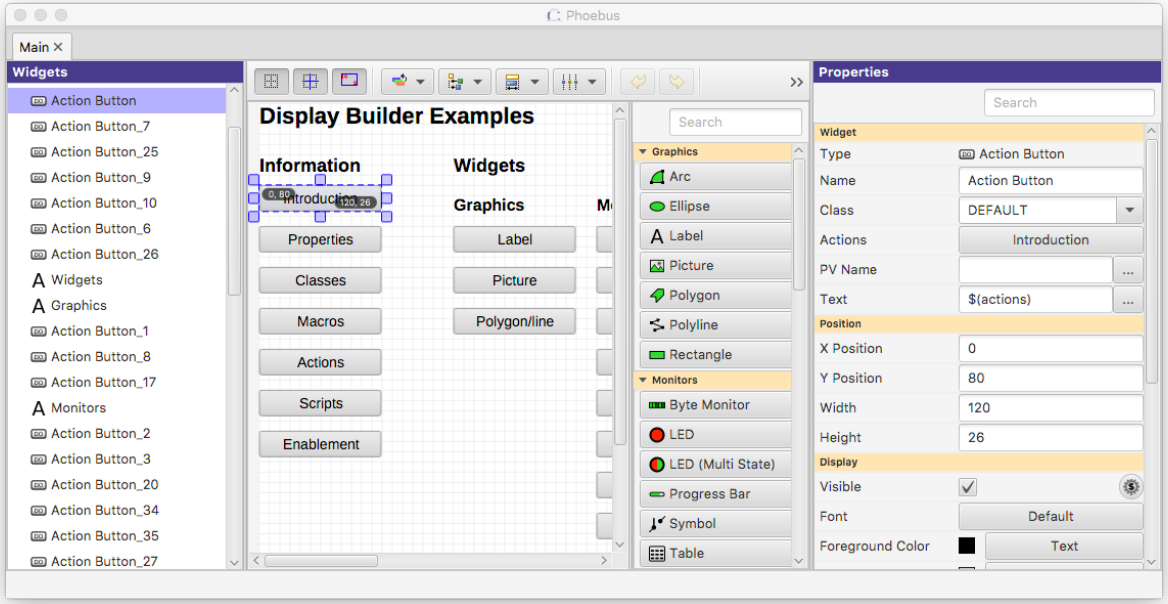
U.S. DEPARTMENT OF ENERGY

Display Builder in CS-Studio Desktop Tool

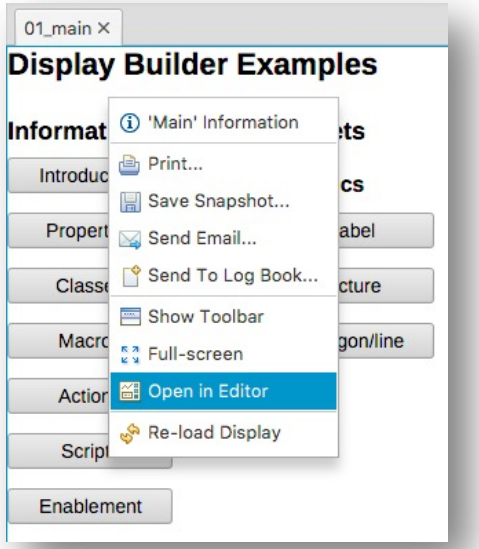


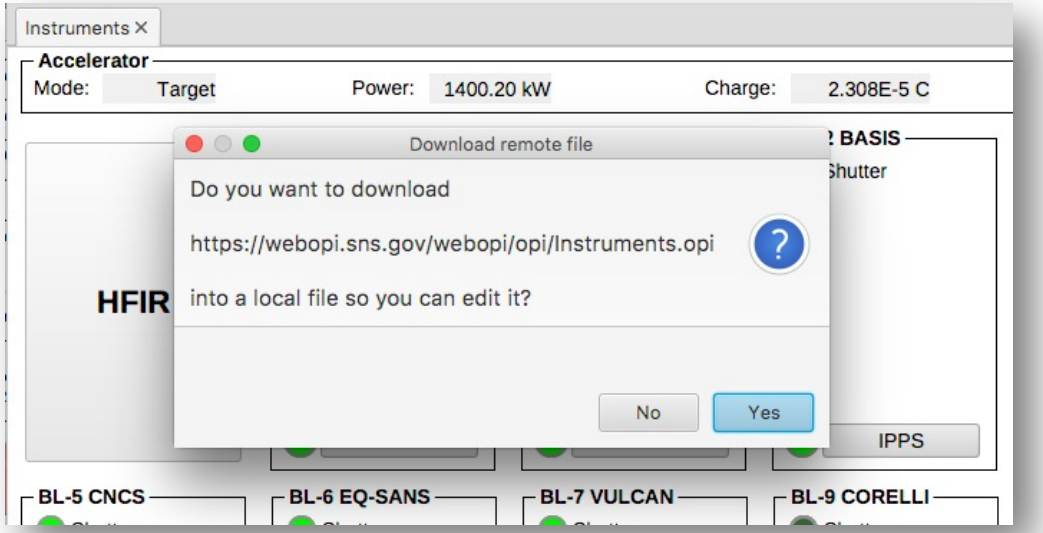


- Best support for all widget types and their features
- Includes editor for creating / modifying displays

But: Users need to install the tool, somehow access the display files, and the PV data (Channel Access, PV Access)

Storing Display Files on Web Server





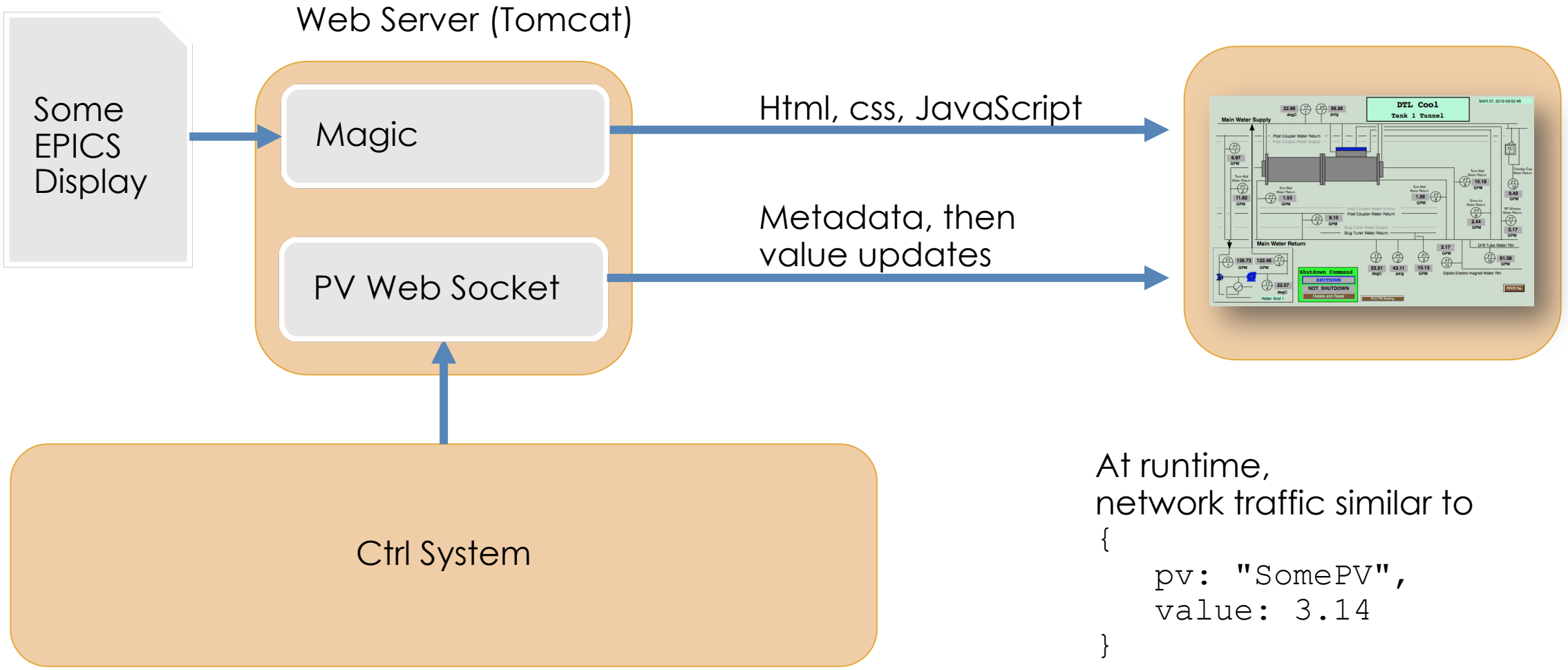
- Useful to make files available outside of control room
- Safe, read-only, always up to date

.. But still using desktop tool.

To edit, you'll be prompted for download

Display Builder Web Runtime

Client only has a web browser!



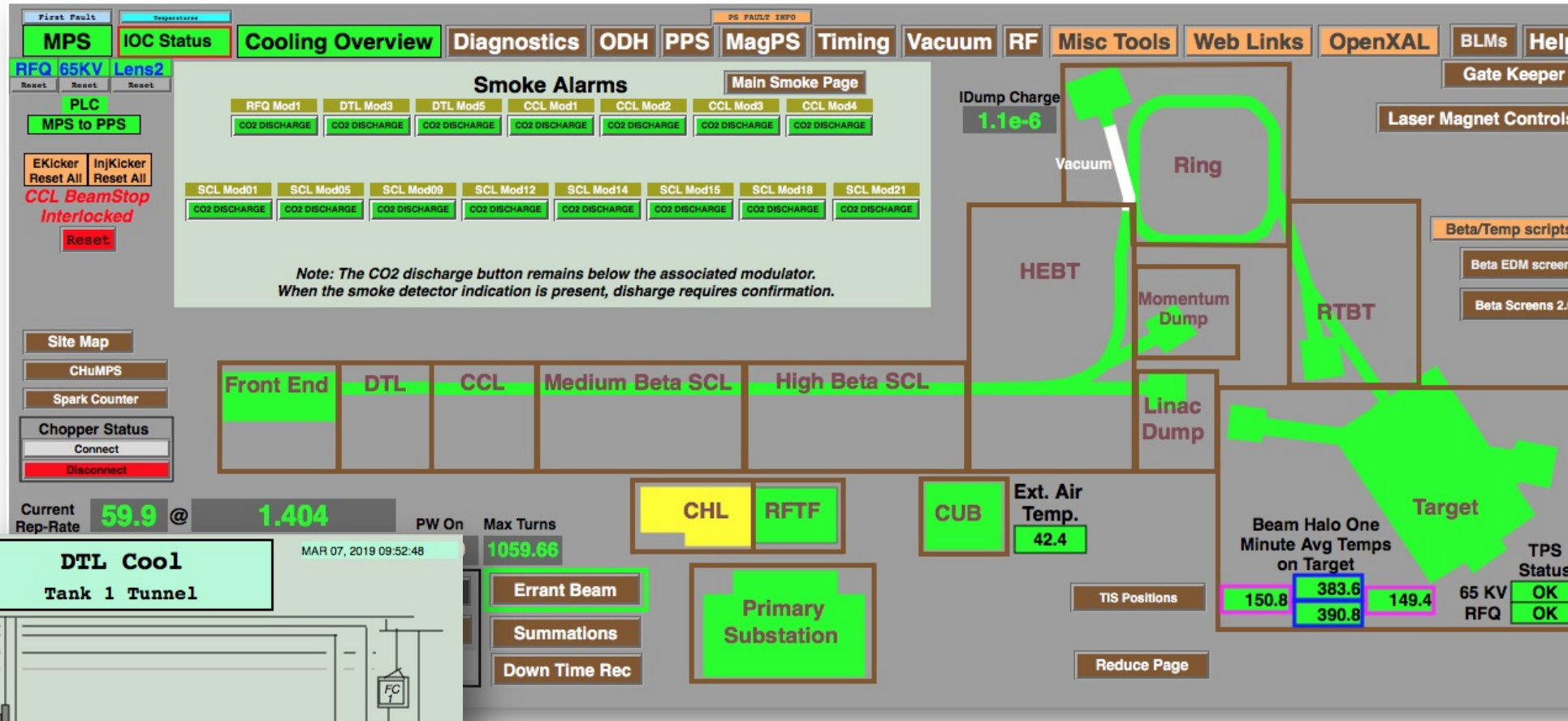
At runtime,
network traffic similar to

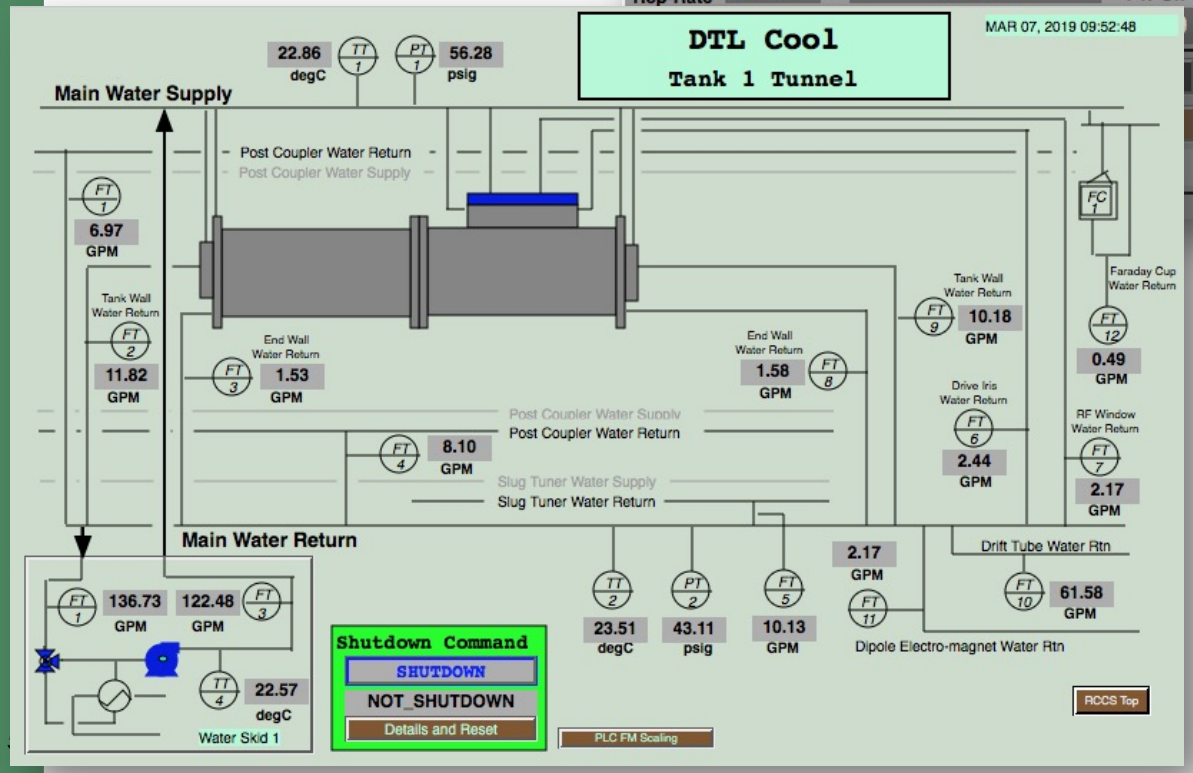
```
{
    pv: "SomePV",
    value: 3.14
}
```

Web EDM

Ryan Slominski,
JLab,

2017 EPICS Meeting





Very useful and performant
for EDM displays
and Channel Access IOCs

Limitations:

- No waveforms (plots, images)

Training Setup

- Start web server:
  cd /ics/tools/apache-tomcat*/bin
  ./startup.sh

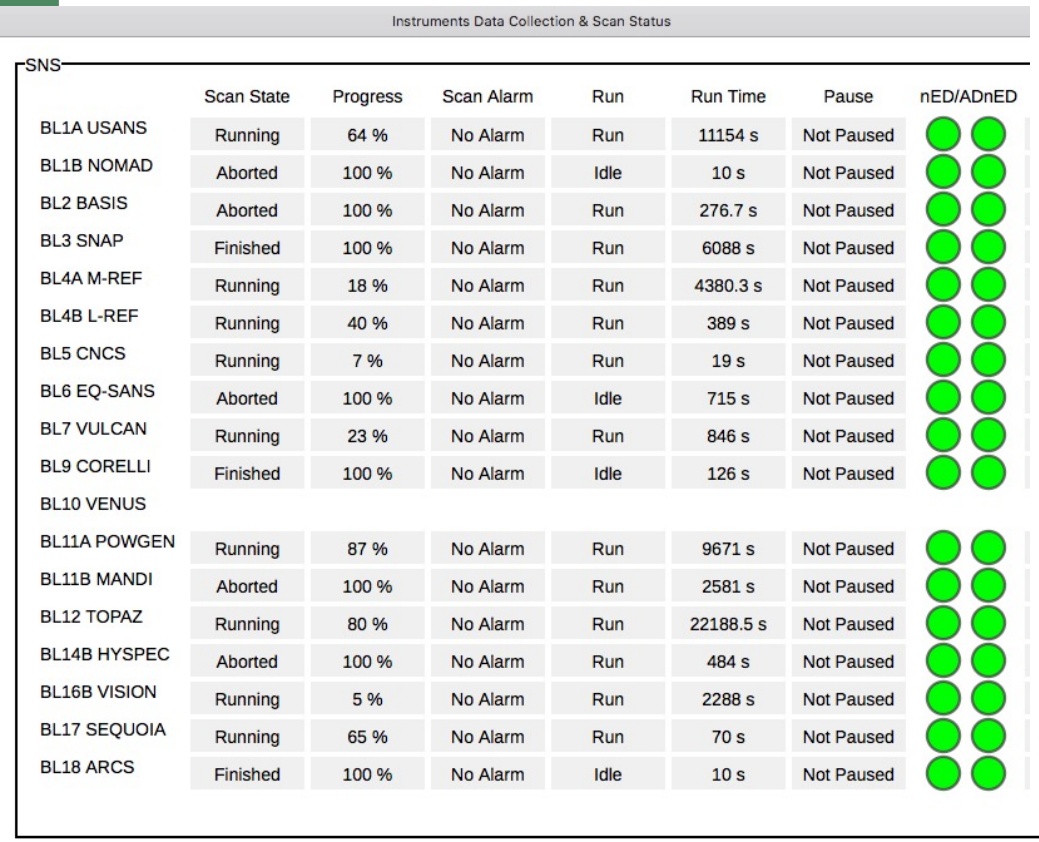
- In web browser, open
  - http://localhost:8080/pvws
  - http://localhost:8080/dbwr

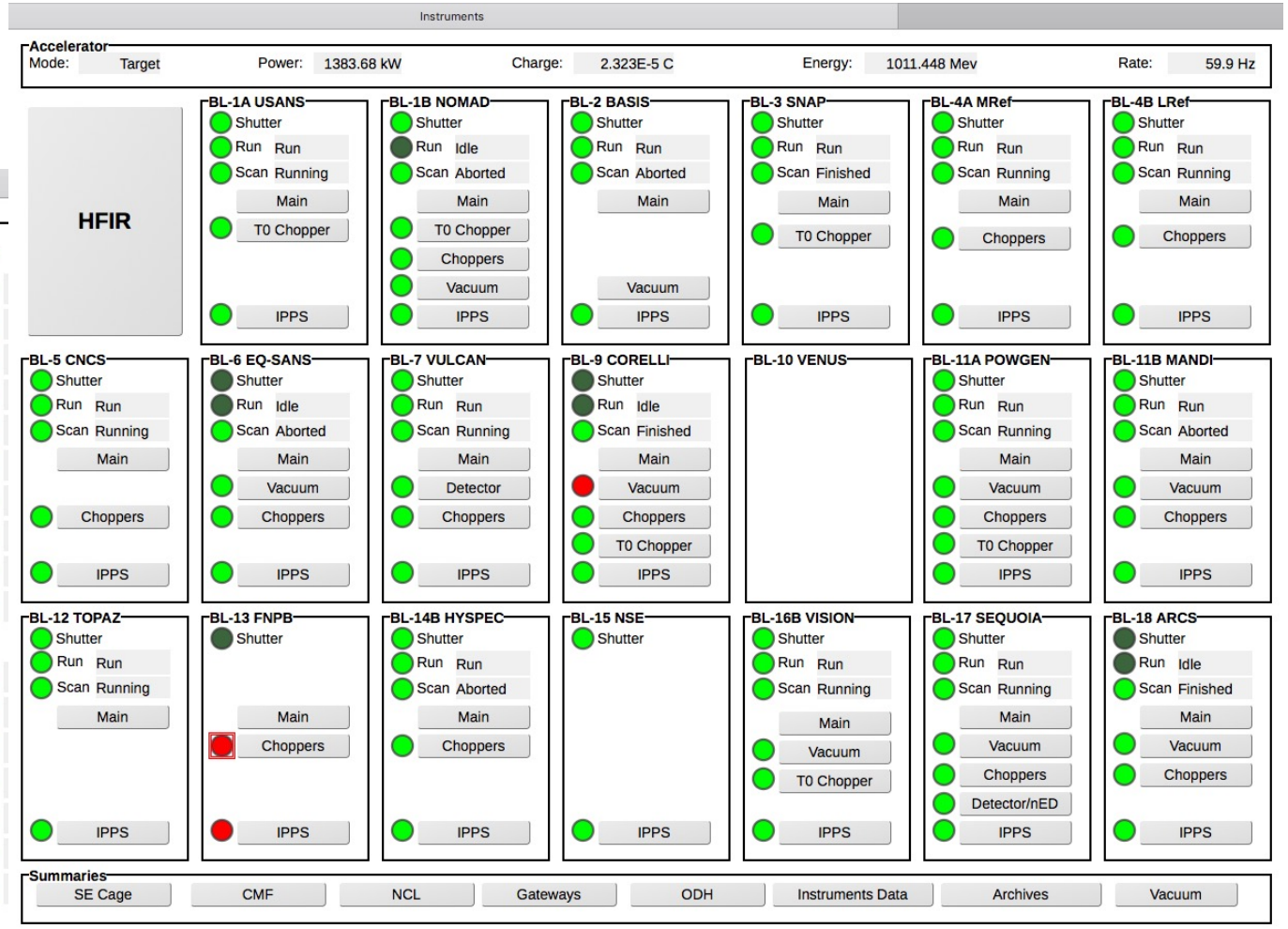
- Stop:
  ./shutdown.sh

PV Web Socket - http://localhost:8080/pvws

- Based on Phoebus Stack
  - VType PV for loc://, sim://, ca://, pva://, …
  - PV Pooling
  - RXJava Throttling
- Data Packaged as JSON
  - Sends metadata once
    - No separate connections to *.EGU, *.PREC, …
  - Severity and value on change
  - Arrays packed as Base64-binary
  - JavaScript in client merges updates

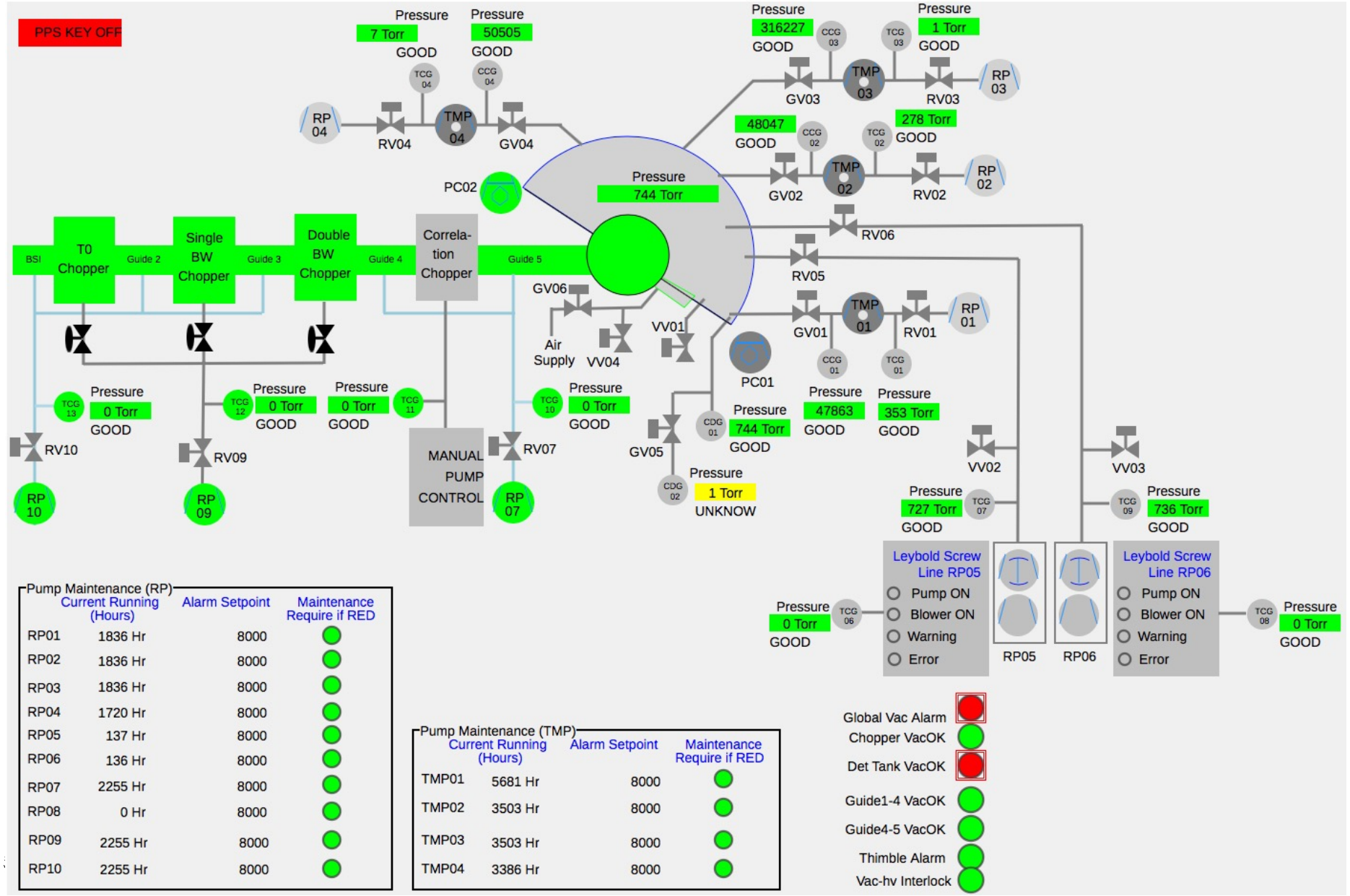
Display Builder Web Runtime - http://localhost:8080/dbwr





Labels, LEDs, Text Updates
Groups, Embedded displays, Macros

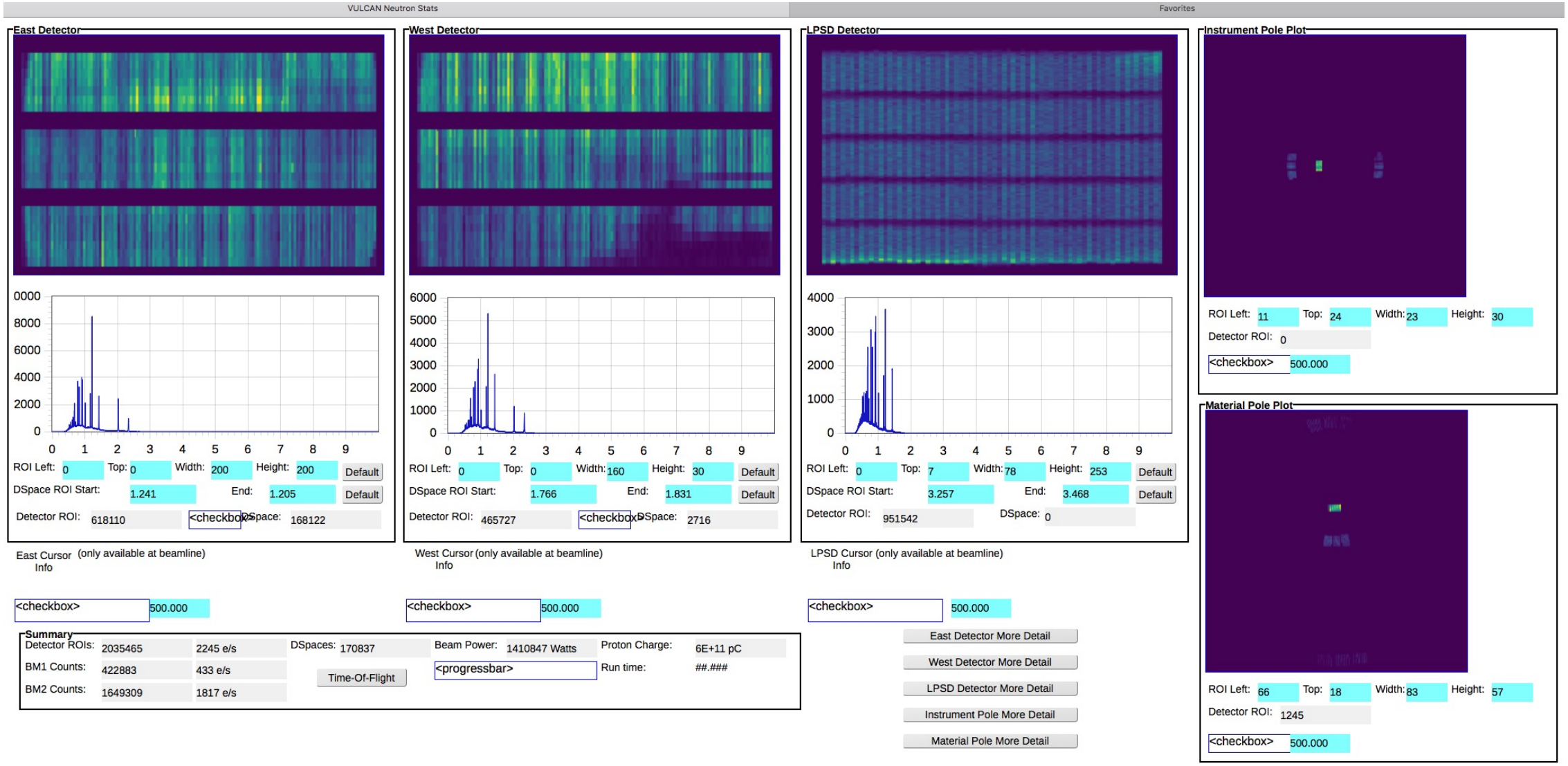
'Static' Widgets



Lines,
Circles,
Rectangles, ..

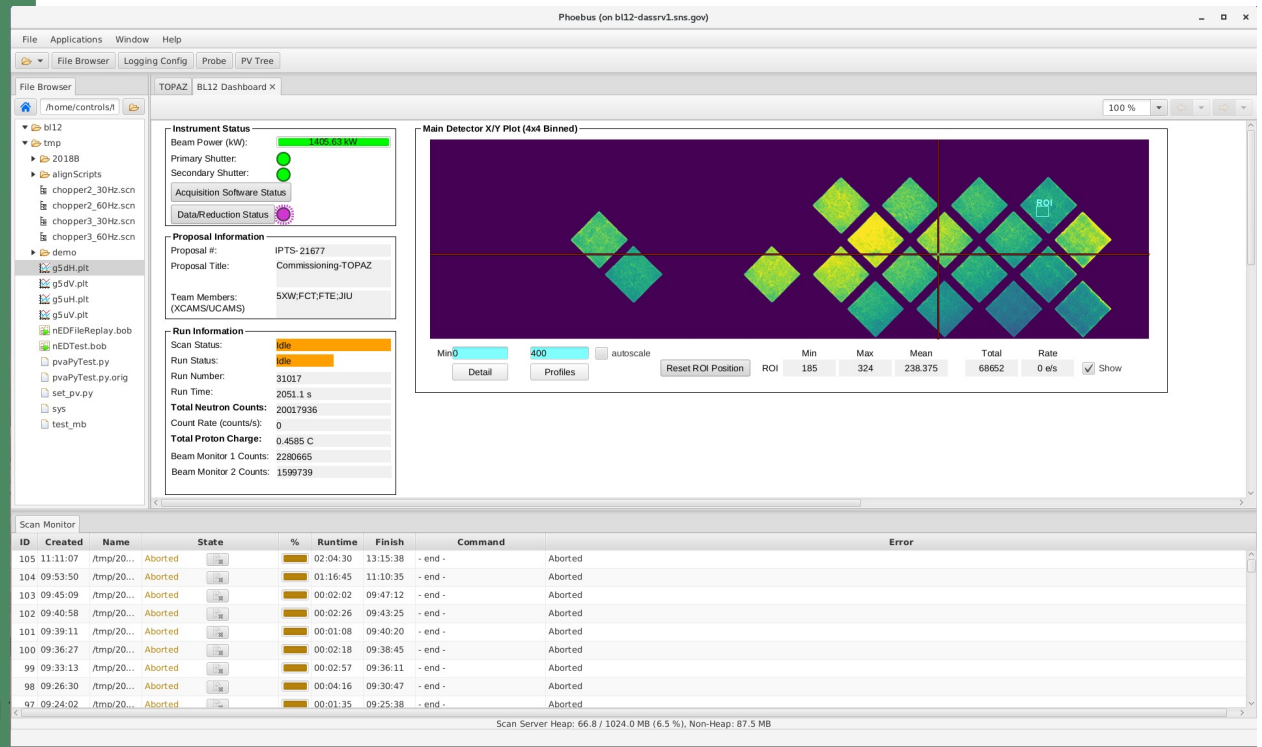
Limited 'Rule' Support:
Some colors,
Hide/Show

Line and Detector plots



CS-Studio on Desktop vs. Web Runtime

- Integrated Product
- Easy Development
  - Type checking
  - Single-Language



- Just Display Runtime
- Scattered Development
  - No type checking
  - Client: HTML, CSS, JS
    Server: Java, Python, …
  - Different Web Browsers

Still:
Read-only web view of control system is extremely convenient and useful!

Status: New Project, but already very useful

- Label
- Rectangle
- Ellipse
- Arc
- Polyline
- Polygon
- Text Update
- Text Input
- Text formatting (precision, units, enum labels)
- LED
- Multi-State LED
- Action Button to open display or web link
- Combo
- Group with group border
- Embedded Displays
- Tabs
- XYPlot
- Image
- Macro support
- Alarm-sensitive border based on PV
- Limited Rule support: Color of rect/circle/label, visibility
- Caching

Summary

Display Builder *Web Runtime* offers web access to much of the *Desktop* version

https://github.com/kasemir/pvws
https://github.com/kasemir/dbwr

1. git clone
2. ant
3. copy *.war to Tomcat
4. Set environment:
   EPICS_CA_ADDR_LIST, ..

➔ http://your_tomcat/dbwr