



# Workshop Report

Berryman - Carcassi - Kasmir - Shroff

# Management Review Meeting

Review of the Quality Management System by management regarding:

- suitability
- adequacy
- effectiveness



Meeting Outcome

Opportunities for improvement  
resources needed

Need for changes  
including Quality Policy and  
Objectives

# Quality Policy and Objectives

## **CS-Studio Quality Policy**

Through a strategy of continuous improvement and teamwork, the Control System Studio Collaboration is dedicated to supplying tools for control systems, data integration and data visualization to enable our users to achieve their scientific objectives.

The foundation for achieving our commitment is based on:

- understanding and meeting the requirements of our users,
- continuously improving all processes related to the Control System Studio product,
- effectively utilizing the creative talents in the collaboration

# Quality Policy and Objectives

## **CS-Studio Objective**

The fraction of releases per site deployed vs. releases considered for deployment will be a minimum of 75%

# Process Performance and Product Conformity

- Goals for 3.2 Release
  - We have made good progress of implementing a single connection management layer (pvmanager). BOY's implementation still needs work. (stated at diamond)
  - We have created a single product, with standard features. SNS, KEK, NSLS2, FRIB and CS-Studio products have been updated to contain no java code. (stated as project)
  - We have coordinated monthly releases, with a monthly planning meeting (the last 5 months). (stated at diamond)
  - Moved to repo github
  - Moved to github issues
  - Moved wiki to github
  - Progress toward Feature build
  - Progress to extract 3rd party code from repository - Investigate 'Orbit'
  - Update Logbook API to support BNL/FRIB Olog
  - Autocomplete infrastructure {pv, pvmanager, channelfinder/db, logbook}

# Process Performance and Product Conformity

## Autocomplete

The screenshot displays the CS-Studio interface. The main workspace shows a grid with a text update widget containing the text "#####". The right-hand side features a Properties window for the selected widget, with an autocomplete dropdown menu open. The dropdown lists matching PV names for the "PV Name" property.

| Property | Value       |
|----------|-------------|
| Name     | Text Update |
| PV Name  | BS]         |

**History (5 matching items)**

- REA\_BTS10:BEAM:OBSFNNAME {"longstring":true}
- REA\_BTS10:BEAM:OBSFNNAME {longstring:true}
- REA\_BTS10:BEAM:OBSFNNAME
- REA\_BTS10:BEAM:OBSFNNAME
- REA\_BTS10:BEAM:OBSFNNAME

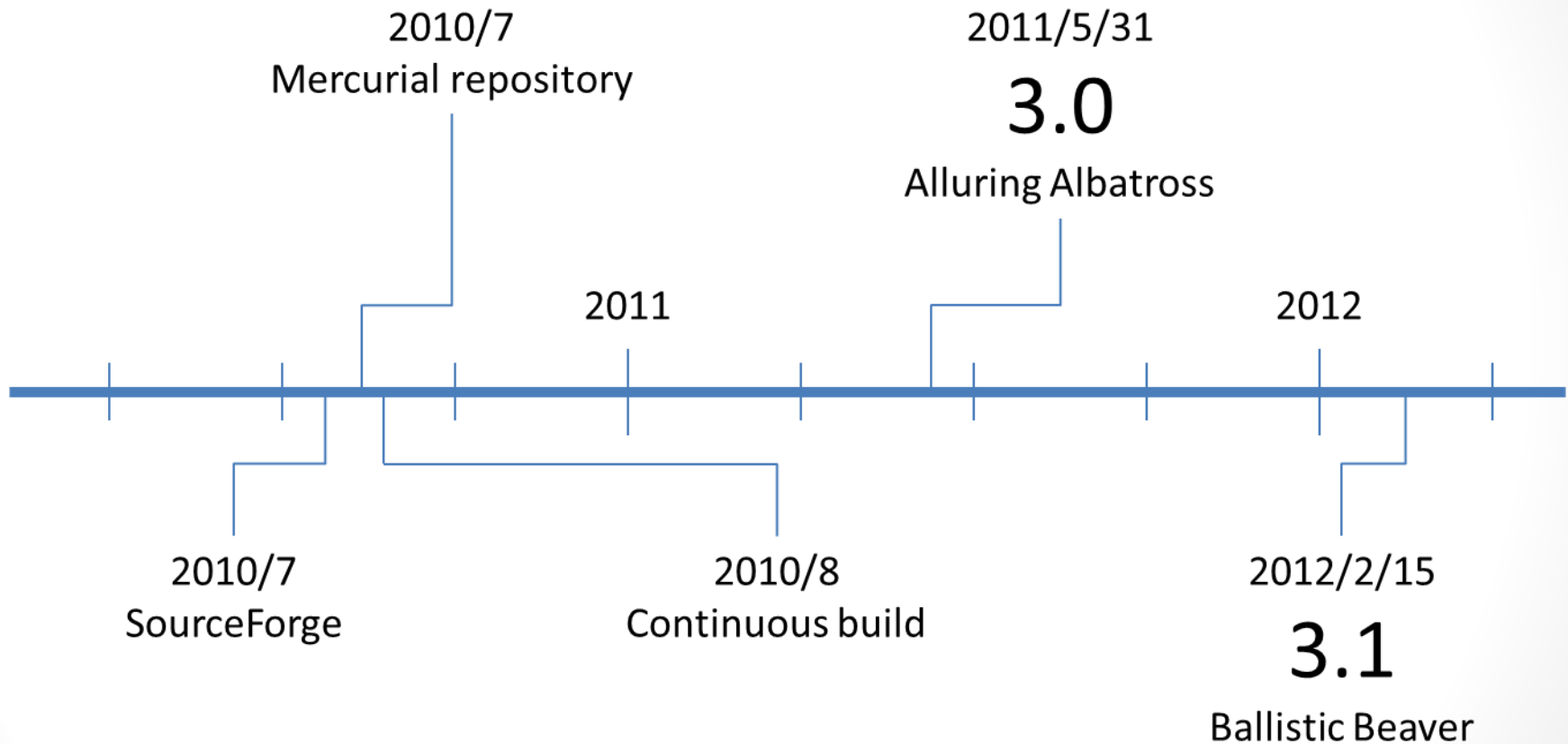
**ChannelFinder (10 matching items)**

- BSS\_BTS11:FC\_D1000:RNGA\_RST5
- \_BSS\_BTS11:PSQ1\_D1042:RDST
- \_BSS\_BTS13:PSQ2\_D1127:DISF
- \_BSS\_BTS13:PSQ2\_D1115:ASUB\_ON\_CMD
- BSS\_BTS02:PSQ3\_D0961:I\_RD
- \_BSS\_BTS11:PSQ4\_D1024:PSOFF
- BSS\_BTS02:PSQ3\_D0943:RS5V\_RSET
- \_BSS\_BTS16:PSQ2\_D1207:dummy\_group
- \_BSS\_BTS02:PSQ2\_D0970:PSOFF
- \_BSS\_BTS12:PSD2\_D1071:RST\_CMD

**Properties Window:**

|                    |   |
|--------------------|---|
| Widget Type        | PV Name                                 |
| Behavior           |   |
| Actions            |   |
| Enabled            |   |
| Rules              |   |
| Scripts            |   |
| Visible            |   |
| Wrap Words         |   |
| Border             |   |
| Alarm Sensitiv     |   |
| Border Color       |   |
| Border Style       |   |
| Border Width       |   |
| Display            |   |
| Auto Size          |   |
| BackColor Ale      |   |
| Background C       |   |
| Font               |   |
| ForeColor Ale      |   |
| Foreground C       |   |
| Horizontal Ali     |   |
| Rotation Ang       |   |
| Text               |   |
| Tooltip            | \$(pv_name) / \$(pv_value)              |
| Transparent        | <input type="checkbox"/> no             |
| Vertical Alignment | Middle                                  |
| Format             |   |
| Format Type        | Default                                 |
| Precision          | 0                                       |
| Precision from PV  | <input checked="" type="checkbox"/> yes |
| Show Units         | <input checked="" type="checkbox"/> yes |
| Position           |   |

# Status of Corrective and Preventative Actions



# Status of Corrective and Preventative Actions

- 3.2.6: 7 closed (May)
- 3.2.7: 9 closed; 250 commits (Jun)
- 3.2.8: 11 closed; 135 commits (Jul)
- 3.2.9: 11 closed; 178 commits (Aug)
- 3.2.10: 13 closed; 218 commits (Sept)
- 3.2.11: 1 closed, 16 open; 7 new ← Oct release date
  
- 3.2.x release is a year late (September 2012)
  - Preventative action: Release Manager will be reviewed by the core developers every 6 months



# Audits

- Vasu Vuppula, Facility for Rare Isotope Beams, will perform the first internal audit

# Customer Feedback Analysis

- Website hits in September
  - 402 people
  - 739 visits
  - 1548 actions
- Census
  - 16 developers
  - 16 users
  - 22 different institutions

# Customer Feedback

## Custom OPIs to acknowledge alarms

CS-Studio

File Edit Search CSS Window Help

Data Browser OPI Editor CSS perspective OPI Runtime

example1.opi example1.opi Cryo\_REA\_900W.opi

### Linde 900W Standalone Helium Refrigerator

Warm Compressor 80K Precooling Turboexpanders Dewar Utilities Valve Overview Alarms 1 Alarms 2

#### Turboexpander No. 1

| Ack / State                         | Description               | HDHI     | HIGH     | LOW     | LOLO    | Ack |
|-------------------------------------|---------------------------|----------|----------|---------|---------|-----|
| <input type="checkbox"/>            | Low Inlet Pressure        |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Outlet Pressure       |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Inlet Temperature     |          |          |         |         | Ack |
| <input type="checkbox"/>            | High Speed                |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Speed                 |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Pressure Ratio        |          |          |         |         | Ack |
| <input checked="" type="checkbox"/> | 4270 rpm Speed            | 5775 rpm | 5684 rpm | 600 rpm | 650 rpm | Ack |
| <input checked="" type="checkbox"/> | 35.93 C Brake Temperature | 85 C     | 70 C     | 0 C     | 0 C     | Ack |
| <input checked="" type="checkbox"/> | 30.58 K Inlet Temperature | 0 K      | 0 K      | 18 K    | 15 K    | Ack |

#### Turboexpander No. 2

| Ack / State                         | Description               | HDHI     | HIGH     | LOW     | LOLO    | Ack |
|-------------------------------------|---------------------------|----------|----------|---------|---------|-----|
| <input type="checkbox"/>            | Low Inlet Pressure        |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Outlet Pressure       |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Inlet Temperature     |          |          |         |         | Ack |
| <input type="checkbox"/>            | High Speed                |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Speed                 |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Pressure Ratio        |          |          |         |         | Ack |
| <input checked="" type="checkbox"/> | 3039.9 rpm Speed          | 4200 rpm | 4074 rpm | 600 rpm | 650 rpm | Ack |
| <input checked="" type="checkbox"/> | 56.19 C Brake Temperature | 85 C     | 70 C     | 0 C     | 0 C     | Ack |
| <input checked="" type="checkbox"/> | 9.99 K Outlet Temperature | 0 K      | 0 K      | 7 K     | 5.6 K   | Ack |

#### Turboexpander No. 3

| Ack / State                         | Description               | HDHI     | HIGH     | LOW     | LOLO    | Ack |
|-------------------------------------|---------------------------|----------|----------|---------|---------|-----|
| <input type="checkbox"/>            | Low Inlet Pressure        |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Outlet Pressure       |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Inlet Temperature     |          |          |         |         | Ack |
| <input type="checkbox"/>            | High Speed                |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Speed                 |          |          |         |         | Ack |
| <input type="checkbox"/>            | Low Pressure Ratio        |          |          |         |         | Ack |
| <input checked="" type="checkbox"/> | 2042.8 rpm Speed          | 5775 rpm | 5684 rpm | 600 rpm | 650 rpm | Ack |
| <input checked="" type="checkbox"/> | 22.85 C Brake Temperature | 85 C     | 70 C     | 0 C     | 0 C     | Ack |
| <input checked="" type="checkbox"/> | 7.19 K Outlet Temperature | 0 K      | 0 K      | 4 K     | 3.5 K   | Ack |

#### Compressor Alarm Status

| Ack / State                         | Description                         | HDHI      | HIGH   | LOW      | LOLO     | Ack |
|-------------------------------------|-------------------------------------|-----------|--------|----------|----------|-----|
| <input type="checkbox"/>            | Compressor Trip                     |           |        |          |          | Ack |
| <input checked="" type="checkbox"/> | 11 bara Compressor Discharge Press. | 13.8 bara | 0 bara | 0 bara   | 8.2 bara | Ack |
| <input checked="" type="checkbox"/> | 1.05 bara Compressor Suction Press. | 1.4 bara  | 0 bara | 0 bara   | 0.9 bara | Ack |
| <input checked="" type="checkbox"/> | 7.26 bara Helium Buffer Tank Press. | 0 bara    | 0 bara | 2.7 bara | 2.1 bara | Ack |

#### Coldbox Alarm Status

| Ack / State                         | Description                           | HDHI    | HIGH     | LOW     | LOLO    | Ack |
|-------------------------------------|---------------------------------------|---------|----------|---------|---------|-----|
| <input type="checkbox"/>            | Instrument Air - Coldbox              |         |          |         |         | Ack |
| <input type="checkbox"/>            | 80K Adsorber Shell Temp.              |         |          |         |         | Ack |
| <input checked="" type="checkbox"/> | 4.1 mbara Coldbox Vacuum Shell Press. | 0 mbara | 0 mbara  | 0 mbara | 0 mbara | Ack |
| <input checked="" type="checkbox"/> | 1.11 bara Helium Return Bypass Press. | 0 bara  | 1.4 bara | 0 bara  | 0 bara  | Ack |
| <input checked="" type="checkbox"/> | 79.86 K LN2 Evaporator Temp.          | 0 K     | 0 K      | 72 K    | 0 K     | Ack |
| <input checked="" type="checkbox"/> | 7.77 C GH2 Outlet Temp.               | 0 C     | 0 C      | 0 C     | 0 C     | Ack |

#### Subcooler Alarm Status

| Ack / State                         | Description                             | HDHI    | HIGH    | LOW      | LOLO    | Ack |
|-------------------------------------|---|---------|---------|----------|---------|-----|
| <input type="checkbox"/>            | Instrument Air - Subcooler              |         |         |          |         | Ack |
| <input type="checkbox"/>            | Subcooler Heater High Temp.             |         |         |          |         | Ack |
| <input checked="" type="checkbox"/> | 4.2 mbara Subcooler Vacuum Shell Press. | 0 mbara | 0 mbara | 0 mbara  | 0 mbara | Ack |
| <input checked="" type="checkbox"/> | 53.24 % Subcooler Level                 | 90 %    | 85 %    | 25 %     | 1 %     | Ack |
| <input checked="" type="checkbox"/> | 2.11 bara Helium Outlet Press. (ReA)    | 0 bara  | 0 bara  | 2.8 bara | 0 bara  | Ack |
| <input checked="" type="checkbox"/> | 0.84 bara Helium Outlet Press. (Other)  | 0 bara  | 0 bara  | 2.8 bara | 0 bara  | Ack |
| <input checked="" type="checkbox"/> | 6.73 K Helium Outlet Temp. (ReA)        | 0 K     | 4.5 K   | 0 K      | 0 K     | Ack |
| <input checked="" type="checkbox"/> | 218.17 K Helium Outlet Temp. (Other)    | 0 K     | 4.5 K   | 0 K      | 0 K     | Ack |

#### Turboexpander System Status

| Ack / State              | Description                  | HDHI | HIGH | LOW | LOLO | Ack |
|--------------------------|------------------------------|------|------|-----|------|-----|
| <input type="checkbox"/> | Hardwired Turbing Protection |      |      |     |      | Ack |
| <input type="checkbox"/> | Cooling Water - T1 & T2      |      |      |     |      | Ack |
| <input type="checkbox"/> | Cooling Water - T3           |      |      |     |      | Ack |

#### Plant Overview

| Value      | Description               |
|------------|---------------------------|
| 1.05 bara  | Compressor Suction        |
| 11 bara    | Compressor Discharge      |
| 65.91 %    | Compressor Speed          |
| 59.2 mbara | Dewar Differential Press. |
| 1.2 bara   | Dewar Press.              |
| 497.97 W   | Dewar Heater              |
| 50.23 %    | Dewar Heater              |
| 218.17 K   | LHe Supply Pressure       |

#### Coalescer Dump Events

| Valve | Current Runtime | Last Runtime |
|-------|-----------------|--------------|
| V2811 | ###.# hrs       | ###.# hrs    |
| V2810 | ###.# hrs       | ###.# hrs    |

berryman

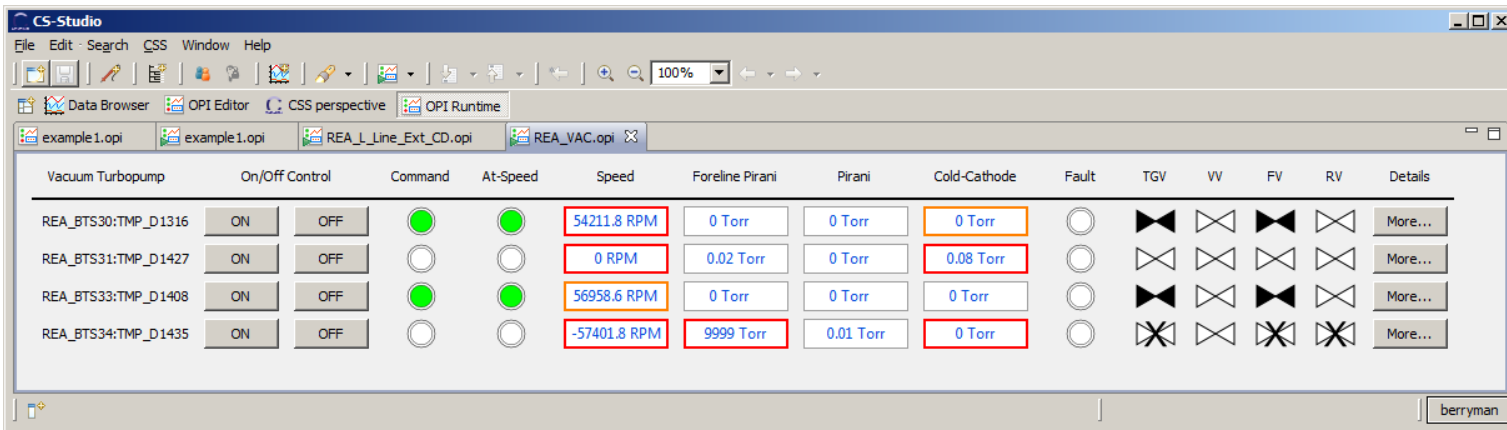
# Customer Feedback

The screenshot shows the CS-Studio interface with a table of PSU data. The table has the following columns: REA\_BTS30, Control, Cmd, Stat, Reset Cmd, Current, Voltage, Status Reported, Intk, Temp, Flow, and Details. The data rows are as follows:

| REA_BTS30  | Control | Cmd | Stat                  | Reset Cmd | Current  | Voltage | Status Reported | Intk | Temp                             | Flow                             | Details |
|------------|---------|-----|-----------------------|-----------|----------|---------|-----------------|------|----------------------------------|----------------------------------|---------|
| PSC1_D1219 | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSC2_D1219 | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1221  | ON      | OFF | <input type="radio"/> | Reset     | 0.063 A  | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1228  | ON      | OFF | <input type="radio"/> | Reset     | -1.907 A | 0.142 V | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1245  | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1252  | ON      | OFF | <input type="radio"/> | Reset     | -0.037 A | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSC1_D1270 | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSC2_D1270 | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1272  | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1275  | ON      | OFF | <input type="radio"/> | Reset     | -0.104 A | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1281  | ON      | OFF | <input type="radio"/> | Reset     | -0.023 A | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1285  | ON      | OFF | <input type="radio"/> | Reset     | 0.038 A  | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSD_D1296  | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSC1_D1305 | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSC2_D1305 | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1307  | ON      | OFF | <input type="radio"/> | Reset     | -0.102 A | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1310  | ON      | OFF | <input type="radio"/> | Reset     | 0.104 A  | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1323  | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1327  | ON      | OFF | <input type="radio"/> | Reset     | -0.07 A  | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSD_D1338  | ON      | OFF | <input type="radio"/> | Reset     | -0.089 A | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSC1_D1345 | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input checked="" type="radio"/> | <input checked="" type="radio"/> | More... |
| PSC2_D1345 | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1346  | ON      | OFF | <input type="radio"/> | Reset     | 0.292 A  | 0.001 V | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSQ_D1351  | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input type="radio"/>            | <input checked="" type="radio"/> | More... |
| PSD_D1362  | ON      | OFF | <input type="radio"/> | Reset     | 0 A      | 0 V     | ILK             | ▼    | <input checked="" type="radio"/> | <input checked="" type="radio"/> | More... |

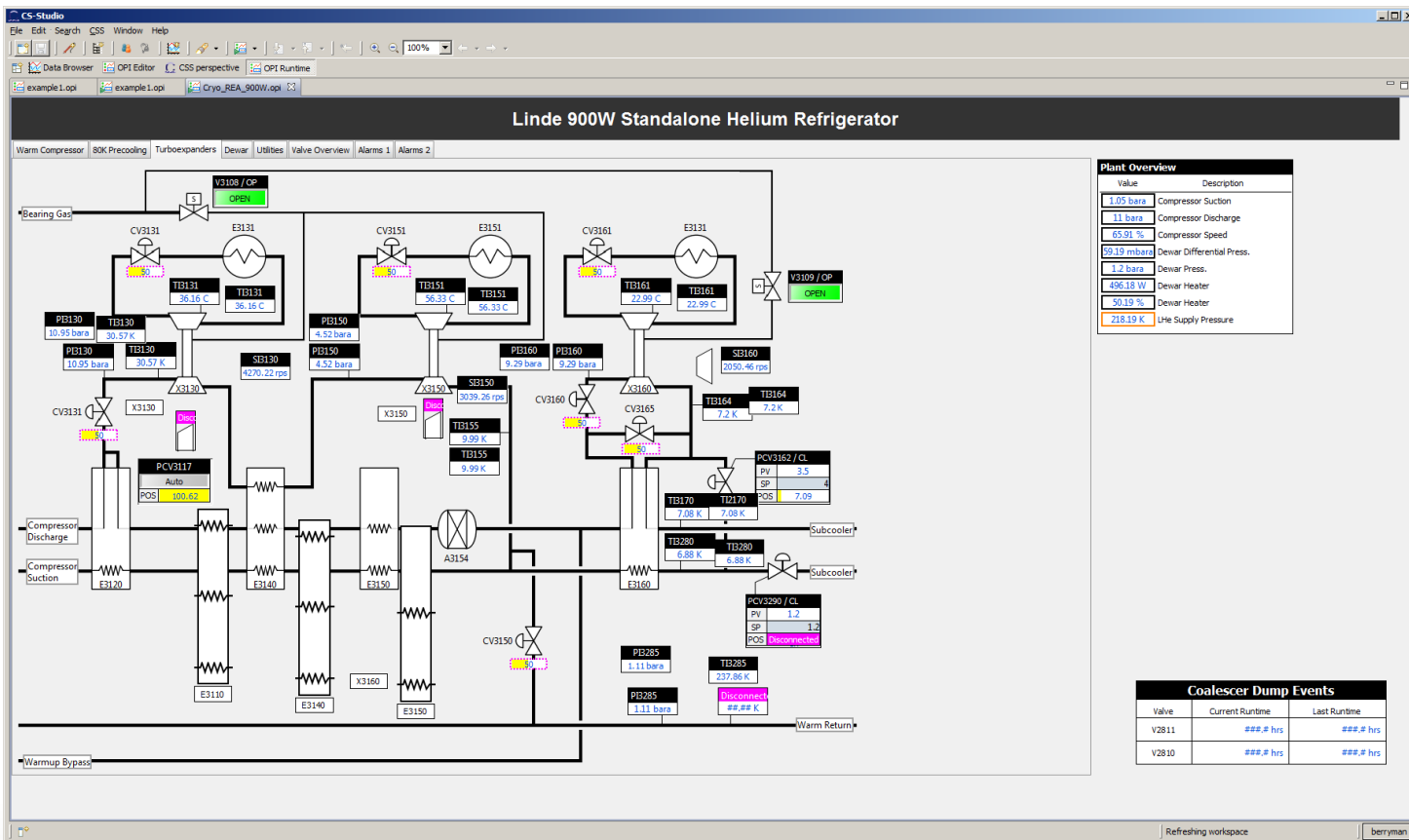
# Customer Feedback

Simplify making OPIs that iterate a template



# Customer Feedback

Screens can not depend on just color to relay information



# Decisions and Actions for Improvement

- At end of October
  - Close 3.2.x development and only allow hotfixes
- Remaining requirements to mark 3.2.x as a stable release
  - Bug Fix and patches
    - BOY script performance (set 10Hz max update limit)
  - PVManager functions
  - Autocomplete
- New repository rules
  - All commits will be done with a pull request
  - All commits must reference a issue number
- Release Manager 6 month review

# Decisions and Actions for Improvement

- 3.3.x Goals
  - Focus on BOY stability
  - Standardize GUI testing across labs
  - Prune the repository of plugins that; lack a maintainer or are unused
- Simplify and improve project processes
  - Transparency
  - Iterations with audits
  - Take advantage of existing github features
    - Connecting issues and commits
    - Github pull request
- Improve customer feedback
  - Survey



# Resource Needs

- Kunal Shroff (NSLSII) will be the interim maintainer for BOY RCP
- RAP support
- BOY script support