

Control System Studio,

CSS

Overview

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ORNL/SNS

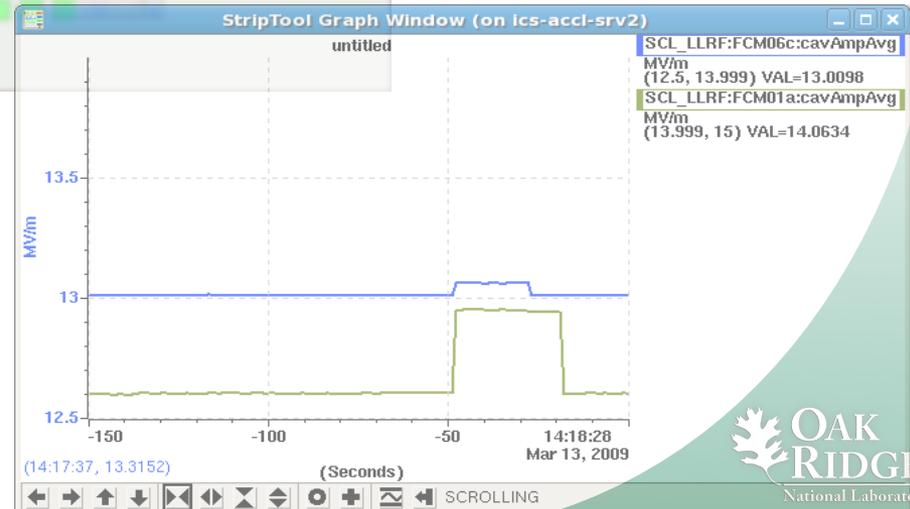
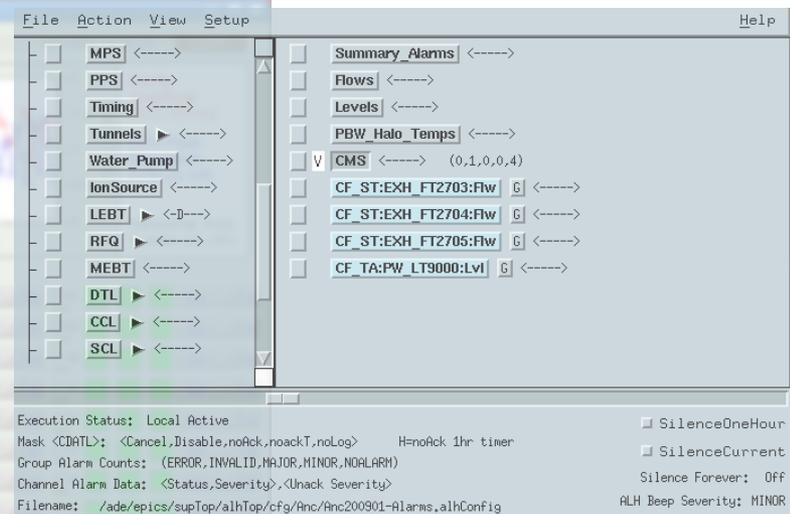
kasemirk@ornl.gov

Jan. 2013

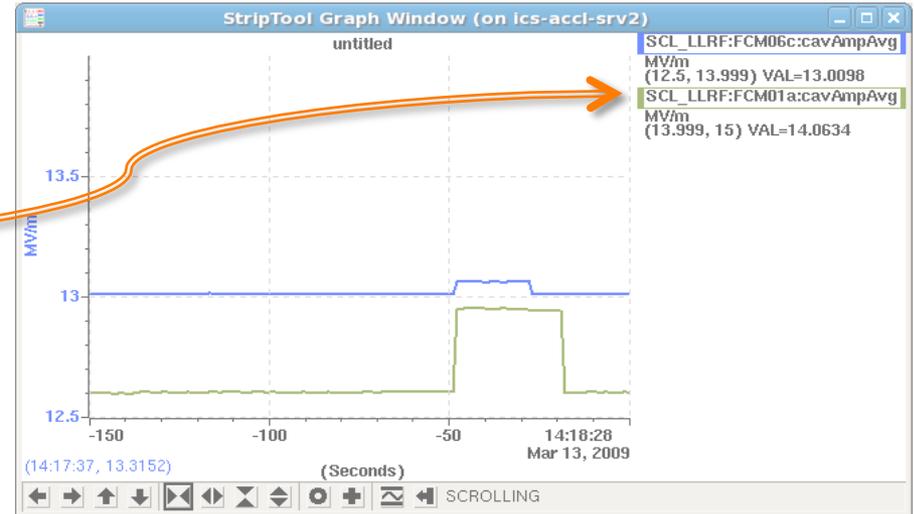
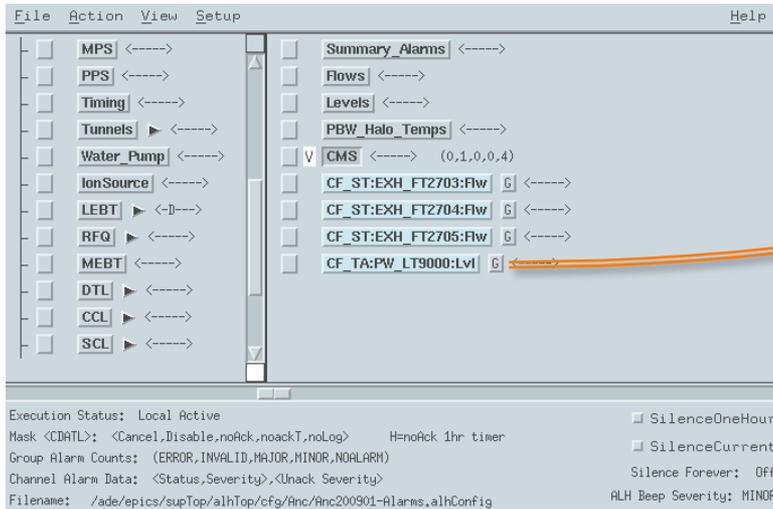
Original EPICS Operator Interfaces

Many disjoint tools

- Static layout
- Inconsistent Look
- Online help?
- primarily for Linux/X11



No Integration between Tools



- Note PV associated with Alarm
- Start StripTool
 - Add PV to StripTool
- Start Archive viewer
 - Add PV ..

CSS: A Collaboration

- **Goal:**
Portable, better integrated control system tools
- **Started 2006 between DESY and SNS**
 - Joined by CLS, APS, BNL, ITER, KEK/J-PARC, ...
- **`http://sourceforge.net/apps/trac/cs-studio`**
 - **Wiki, Mailing lists**
 - **Source code: <https://github.com/ControlSystemStudio>**



CSS: Control System Architecture

- Portable environment (Windows, Linux, OS X)
- Free development tools



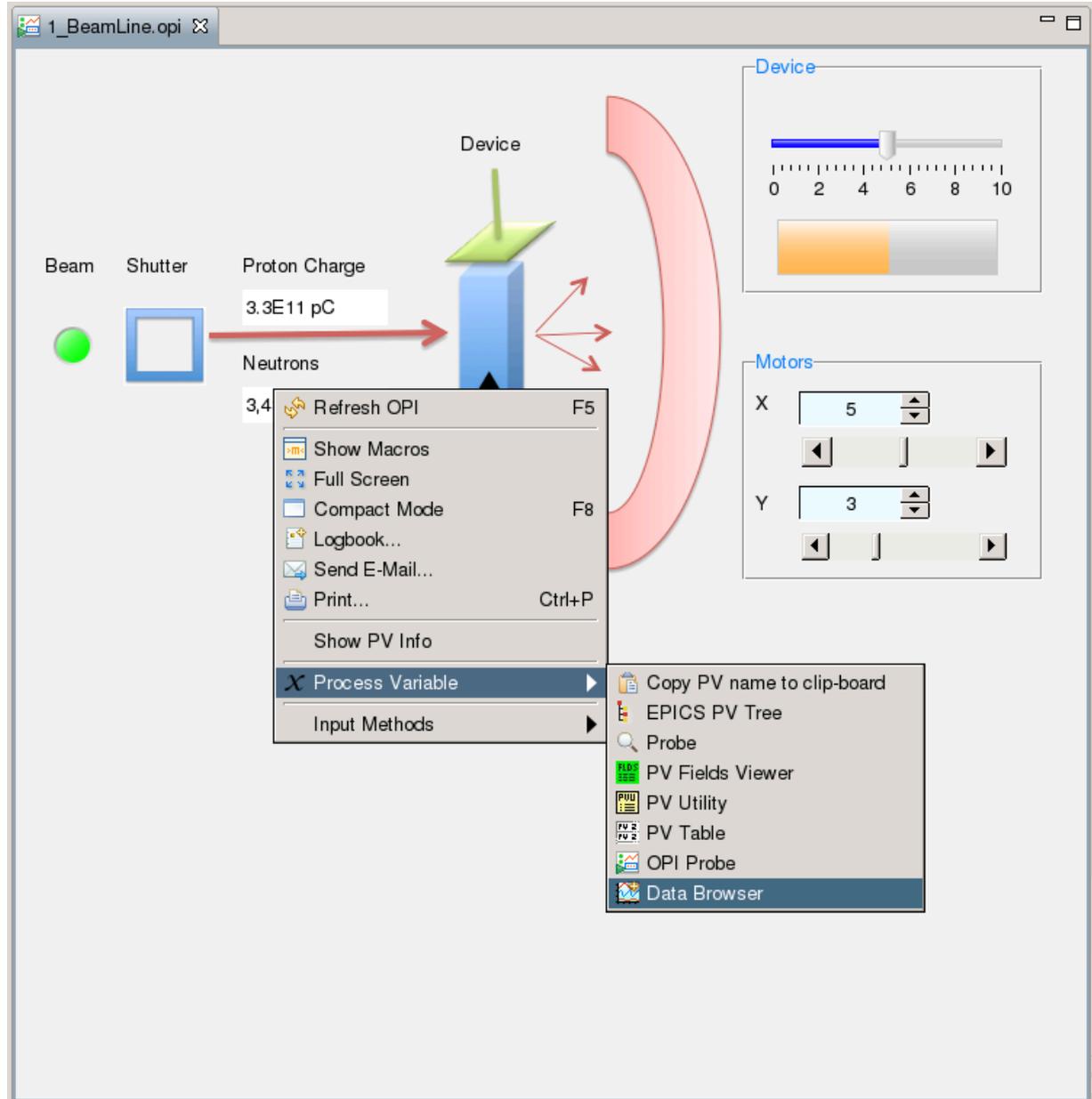
- Plug-Ins, Extension points, Registry
- Rich Client Platform (RCP): Windows, menus, help, preferences, online update, ...

Assume this Beam Line GUI

The screenshot shows a software interface for a beam line. On the left, a green circle labeled "Beam" is connected to a blue square labeled "Shutter". A red arrow labeled "Proton Charge" with a value of $2.5E11$ pC and "Neutrons" with a value of 2,609 points to a blue rectangular "Device". A green cone is on top of the device, and a coordinate system with "Y" and "X" axes and "Motors" is at its base. To the right of the device is a large red curved detector. On the right side of the GUI, there are two control panels: "Device" with a slider from 0 to 10 (set at 5) and "Motors" with X and Y position controls (X is 5, Y is 3).

How many neutrons do we receive over time?

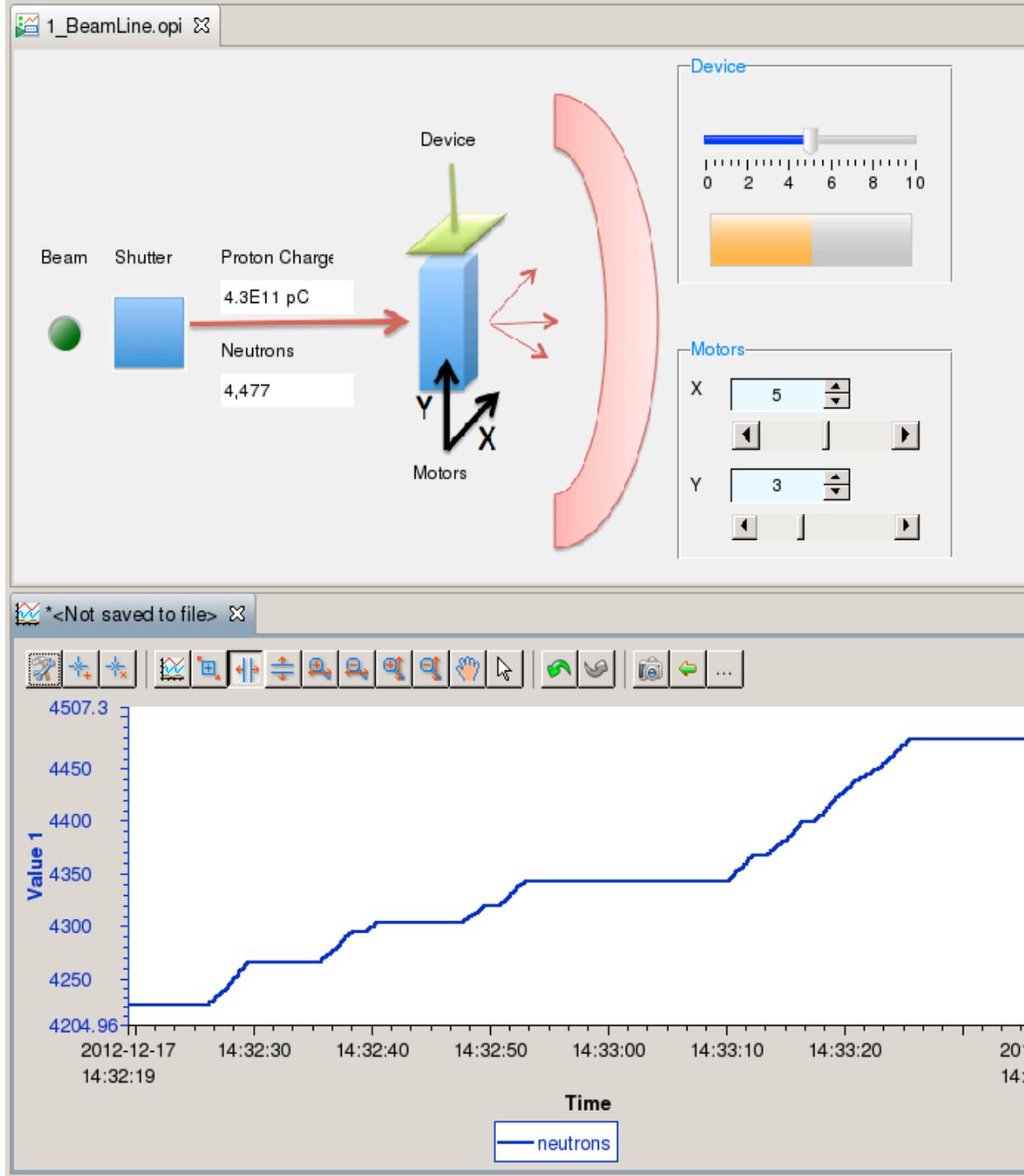
Right click on the neutron count...



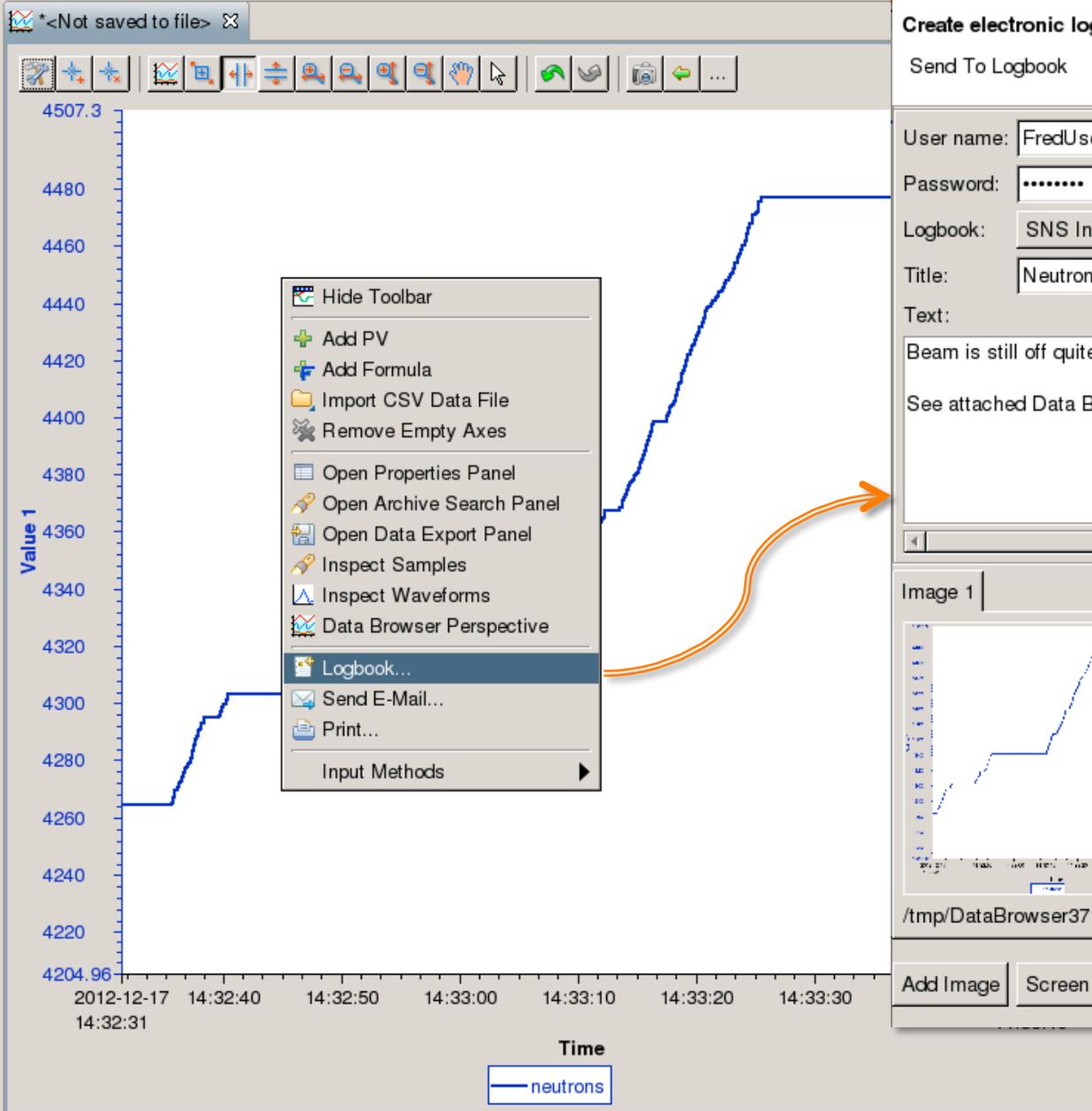
**‘Data Browser
is listed as
one of the
tools that
handle
Process
Variables...**

Plotting...

- Data Browser started
- PV added
- Starts showing samples over time
- Can also query historic data, if available



Logbook Entry...



Logbook Entry

Create electronic logbook entry

Send To Logbook

User name:

Password:

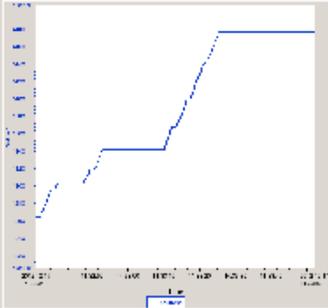
Logbook:

Title:

Text:

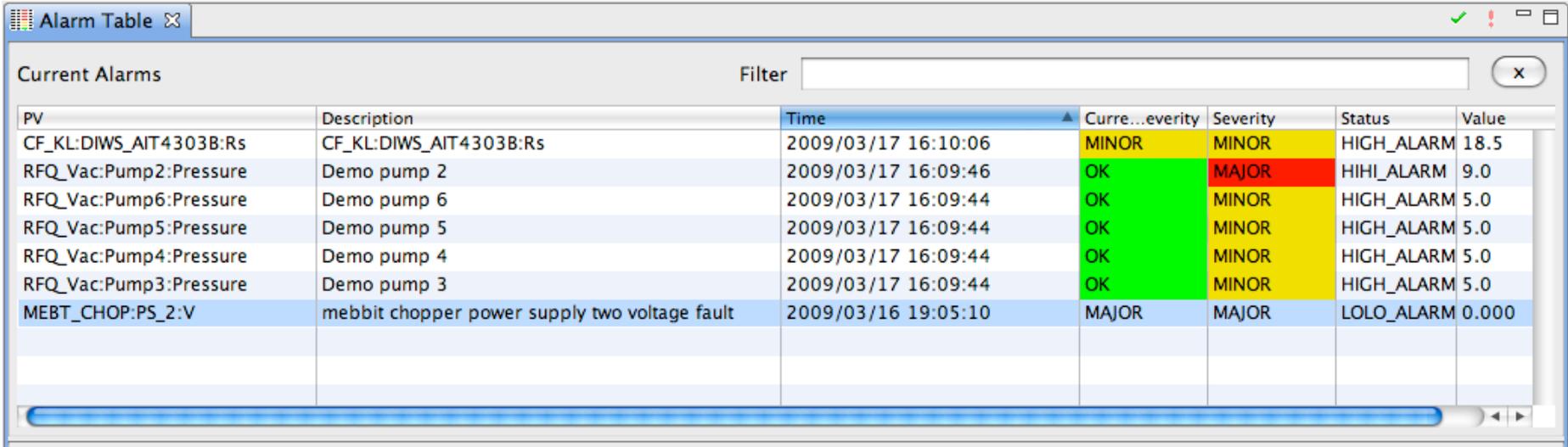
Beam is still off quite often, see flat sections in neutron count.
See attached Data Browser plot

Image 1



/tmp/DataBrowser3710301075631988780.png

Accelerator Example: React to Alarm



The screenshot shows a window titled "Alarm Table" with a "Filter" input field and a close button. Below the filter is a table of "Current Alarms". The table has seven columns: PV, Description, Time, Current Severity, Severity, Status, and Value. The rows are as follows:

PV	Description	Time	Current Severity	Severity	Status	Value
CF_KL:DIWS_AIT4303B:Rs	CF_KL:DIWS_AIT4303B:Rs	2009/03/17 16:10:06	MINOR	MINOR	HIGH_ALARM	18.5
RFQ_Vac:Pump2:Pressure	Demo pump 2	2009/03/17 16:09:46	OK	MAJOR	HIHI_ALARM	9.0
RFQ_Vac:Pump6:Pressure	Demo pump 6	2009/03/17 16:09:44	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump5:Pressure	Demo pump 5	2009/03/17 16:09:44	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump4:Pressure	Demo pump 4	2009/03/17 16:09:44	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump3:Pressure	Demo pump 3	2009/03/17 16:09:44	OK	MINOR	HIGH_ALARM	5.0
MEBT_CHOP:PS_2:V	mebbit chopper power supply two voltage fault	2009/03/16 19:05:10	MAJOR	MAJOR	LOLO_ALARM	0.000

CSS includes an alarm system.

Operator notices an alarm...

Example Work Flow: React to Alarm.

The screenshot shows a software interface titled "Alarm Table" with two main sections: "Current Alarms" and "Acknowledged Alarms".

Current Alarms Table:

PV	Description	Time	Curre...everity	Severity	Status	Value
RFQ_Vac:Pump2:Pressure	Demo pump 2	2009/03/17 16:48:10	OK	MAJOR	HIHI_ALARM	9.0
RFQ_Vac:Pump6:Pressure	Demo pump 6	2009/03/17 16:48:08	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump5:Pressure	Demo pump 5	2009/03/17 16:48:08	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump4:Pressure	Demo pump 4	2009/03/17 16:48:08	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump3:Pressure	Demo pump 3	2009/03/17 16:48:08	OK	MINOR	HIGH_ALARM	5.0
FE_MPS:MIOC1A:status_sum	MPS Beam permit	2009/03/17 16:46:28	MAJOR	MAJOR	LOLO_ALARM	2
ICS_Tim:Gate_BeamOn:Switch	Beam awf	2009/03/17 16:46:27	MINOR	MINOR	STATE_ALARM	Shift
CF_KL:DIWS_AIT4303B:Rs	CF_KL:DIWS_AIT4303B:Rs	2009/03/17 16:10:06	MINOR	MINOR	HIGH_ALARM	18.5
MEBT_CHOP:PS_2:V	mebbit chopper power supply two voltage fault		MAJOR	MAJOR	LOLO_ALARM	0.00

Acknowledged Alarms Table:

PV	Description	Time
TMod:Summary_MPS:Alarm	Moderator System MPS Trip	2009/03/17 16:48:08
MEBT_CHOP:PS_1:V	mebbit chopper power supply one voltage fault	2009/03/17 16:48:08
HEBT_Coll:CT2:Cond	HEBT_Coll:CT2:Cond	2009/03/17 16:48:08

A context menu is open over the "MEBT_CHOP:PS_2:V" entry in the "Current Alarms" table. The menu items are:

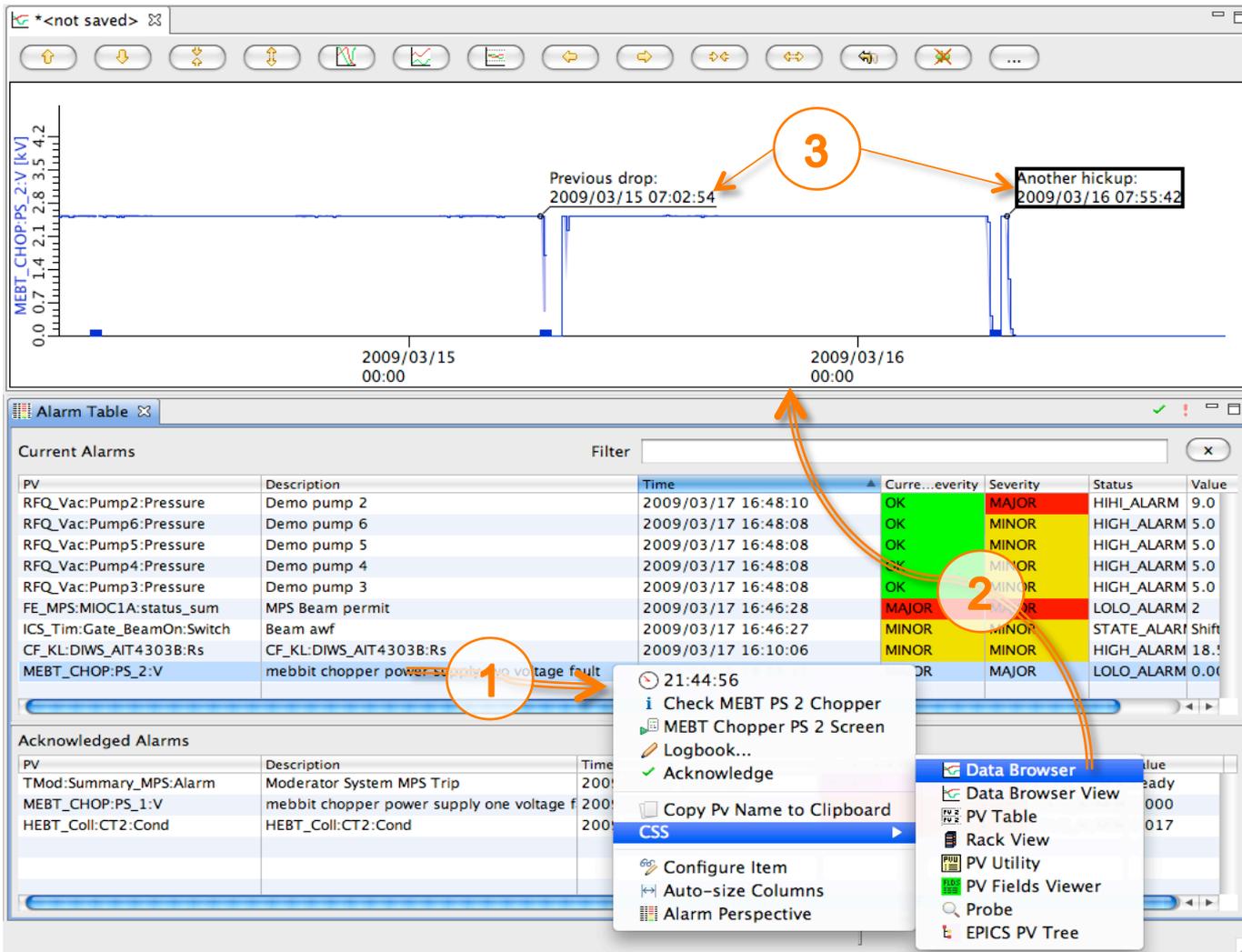
- 21:44:56
- Check MEBT PS 2 Chopper
- MEBT Chopper PS 2 Screen
- Logbook...
- Acknowledge
- Copy Pv Name to Clipboard
- CSS
- Configure Item
- Auto-size Columns
- Alarm Perspective

A secondary menu is open over the "CSS" item, listing various data viewing options:

- Data Browser
- Data Browser View
- PV Table
- Rack View
- PV Utility
- PV Fields Viewer
- Probe
- EPICS PV Tree

Context menu of alarm... (“right click”)

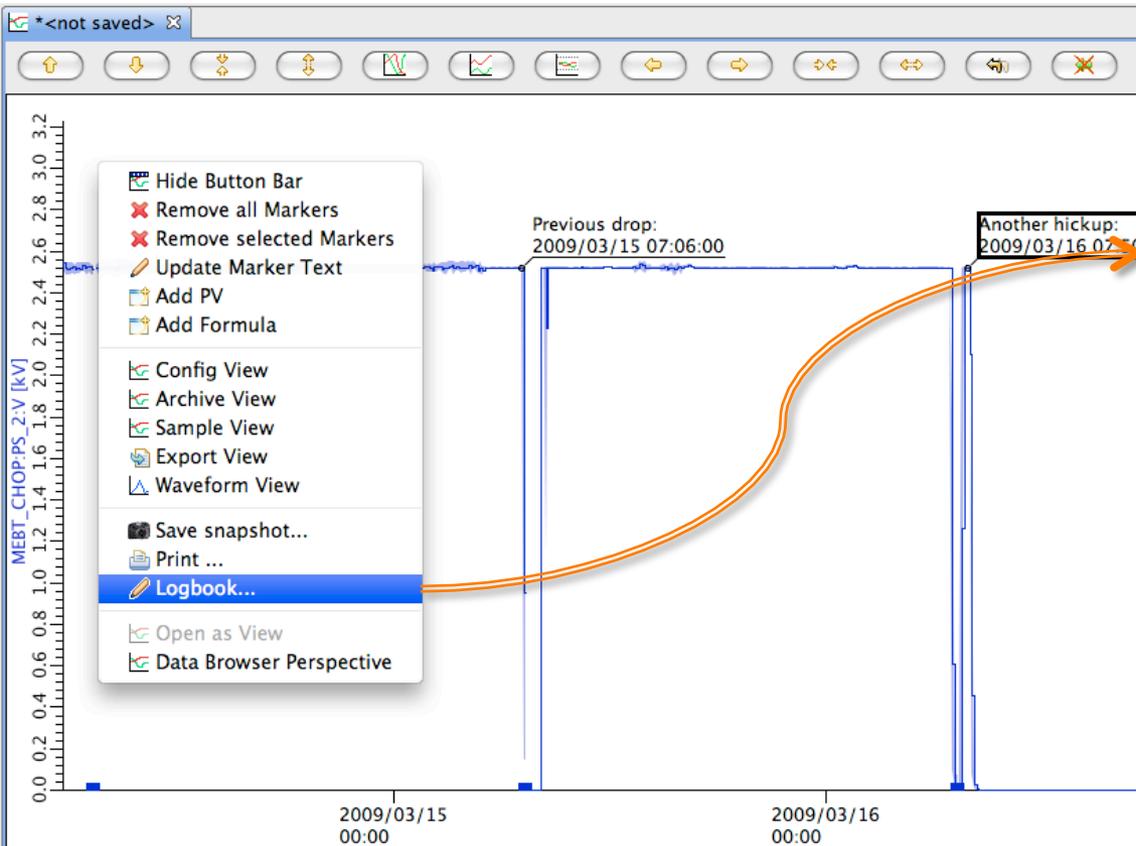
Example Work Flow: React to Alarm...



Inspect history of PV, annotate, ...

Finally: Make Logbook Entry

After inspecting alarm PV history, post commented plot to E-Log!



Logbook Entry

Create electronic logbook entry

Enter user, password, maybe edit text.
Snapshot of current plot will be attached.

User name: Fred

Password:

Logbook: Electrical Systems

Title: Data Browser Snapshot

Text:

Just got another chopper trip.
This time was different, though,
because we did this and not that,
while before we tried that and not this.

Called Jim who suggested to wiggle
the blue cable before resetting

Attached image was created by Data Browser

Attached Image...

Cancel OK

CSS: Toolkit

- **Application Plug-Ins**

- Strip-Chart: Data Browser 
- OPI: BOY 
- Alarms: BEAST 
- Automation: Scan System
- Utilities: Probe, Clock  , PV Tree  , Psychiatrist 

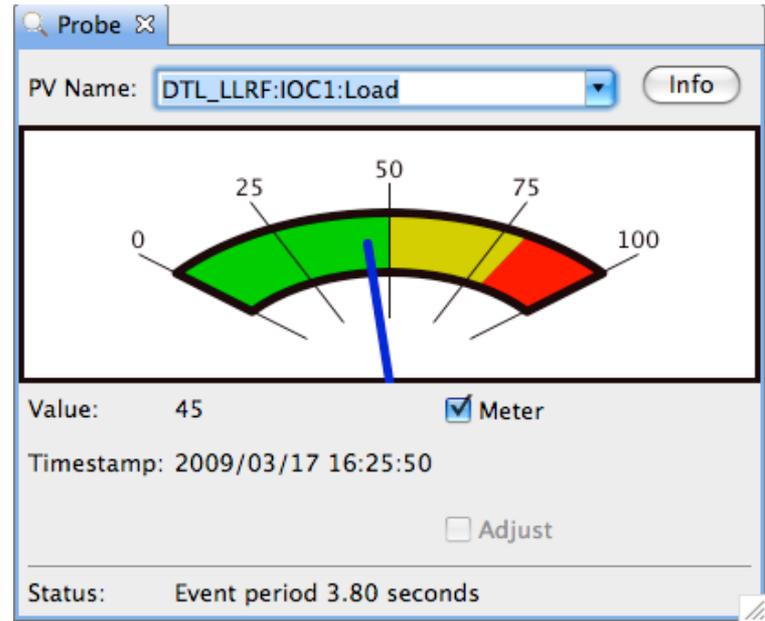
- **Library Plug-Ins**

- Control system data types (PV, Sample, ...), Life data access, Historic Data Access, Logbook  , E-Mail, Authentication, Authorization, ...
- Extension Points
 - Life data: Channel Access, Simulated, Local PVs
 - Historic Data: XML-RPC, RDB, ...
 - Authentication: Kerberos, LDAP, ...

Basic CSS Tools

Probe

- Current value of a PV

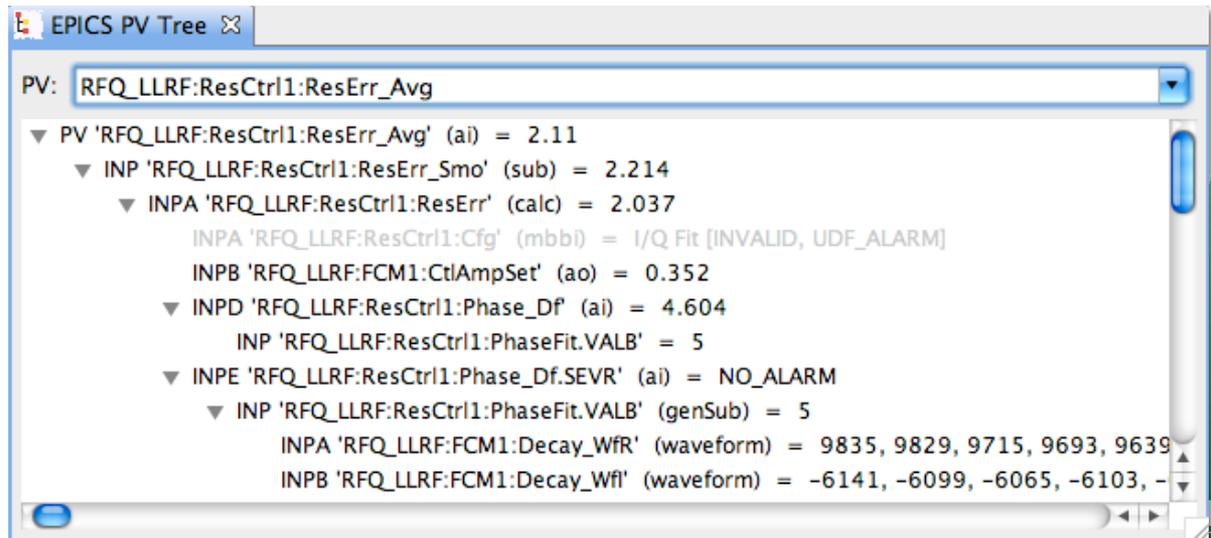


EPICS PV Tree

- Trace PV links

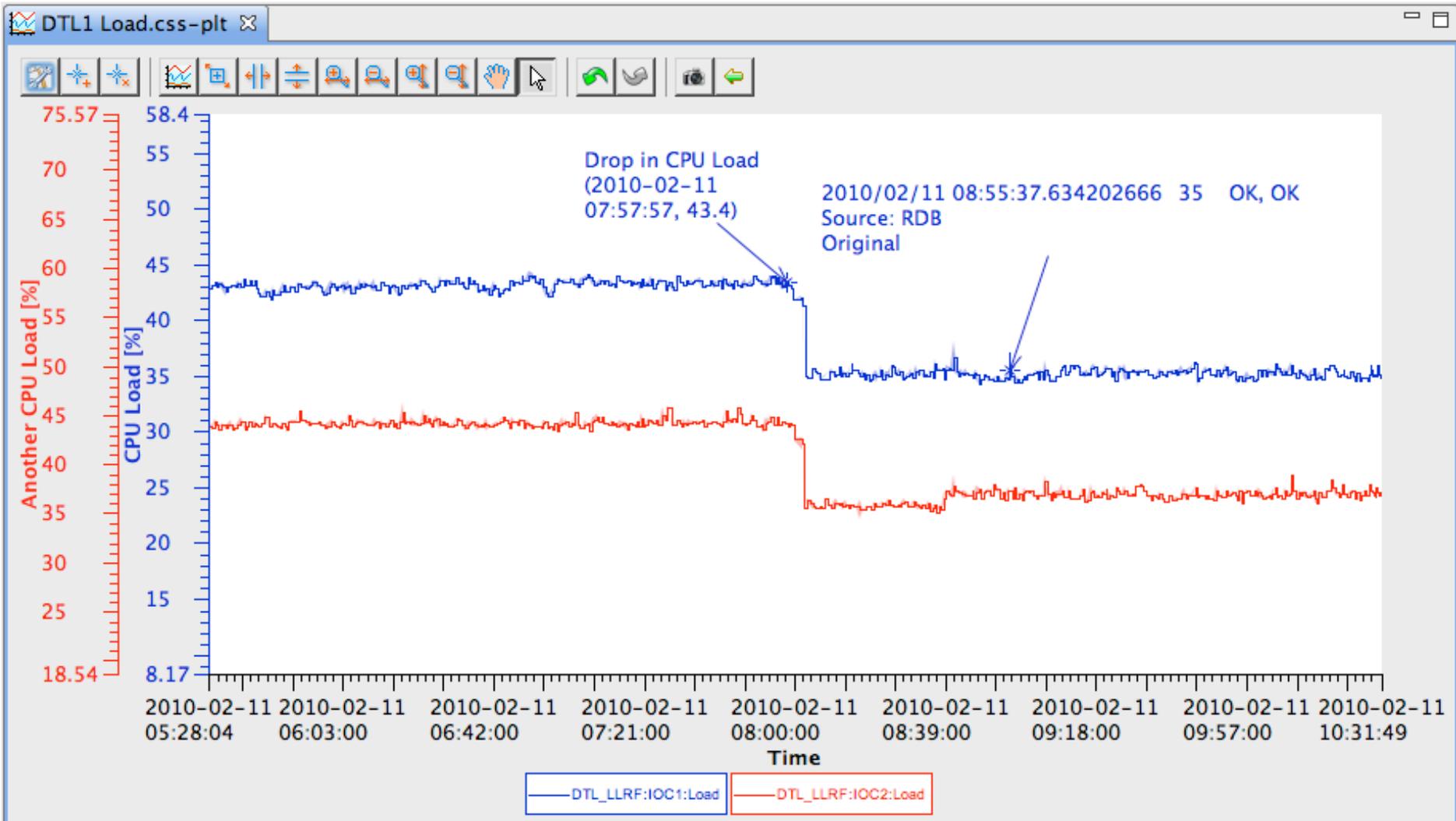
Both:

- ✓ Resize
- ✓ PV Name Drop-down history



Data Browser

Plot 'live' and 'archived' data over time



Support for Historic Data Sources

Archive Search Navigator

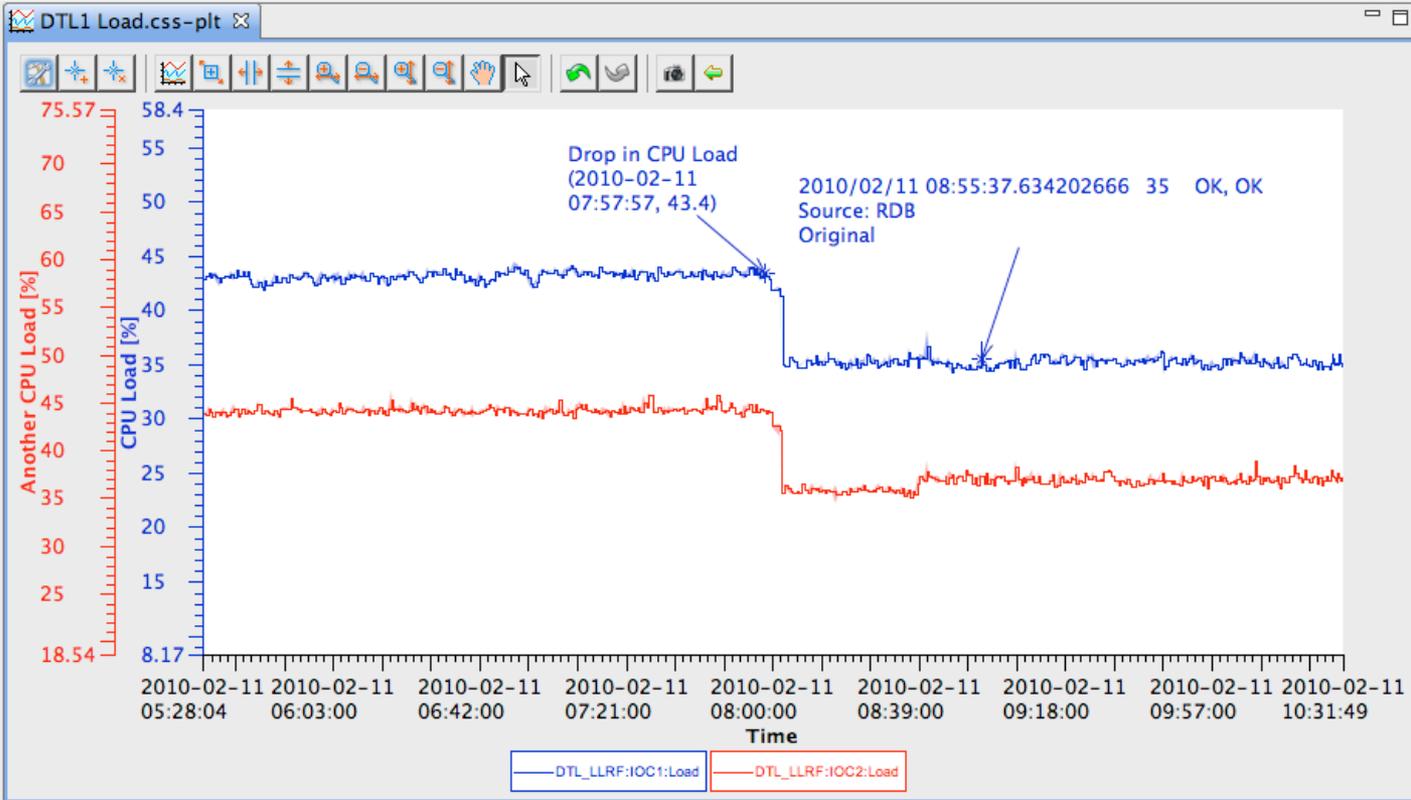
URL: jdbc:oracle:thin:@(DES... Info

Name	Description	Key
rdb	Oracle	1

Pattern: DTL_LLRF:IOC*:Loac Search

Add... Replace search results Reg.Exp.

PV Name	Name
DTL_LLRF:IOC1:Load	rdb
DTL_LLRF:IOC2:Load	rdb
DTL_LLRF:IOC3:Load	rdb
DTL_LLRF:IOC4:Load	rdb
DTL_LLRF:IOC5:Load	rdb
DTL_LLRF:IOC6:Load	rdb



Properties Export Samples

Traces Time Axis Value Axes Misc.

Trace	Item (PV, Formula)	Display Name	Color	Scan Period	Buffer Size	Line Width	Axis	Trace Type	Request
Show	DTL_LLRF:IOC1:Load	DTL_LLRF:IOC1:Load		0.0	100	0	CPU Load	Area	Optimized
Show	DTL_LLRF:IOC2:Load	DTL_LLRF:IOC2:Load		0.0	100	0	Another CF Area	Area	Optimized

Archive Data Sources

Name	Key	URL
RDB	1	jdbc:oracle:thin:@(DESCRIPTION=(ADDRESS_LIST=(LOAD_BALANCE=OFF)(ADDRESS=(PR
- All -	1	xnds://ics-srv-web2.sns.ornl.gov/archive/cgi/ArchiveDataServer.cgi
- All - (last restart)	2	xnds://ics-srv-web2.sns.ornl.gov/archive/cgi/ArchiveDataServer.cgi

Alarm System (BEAST)

Tabular or Tree view, voice annunciations, ...

The screenshot displays the BEAST Alarm System interface. On the left is the 'Alarm Tree' view, showing a hierarchical structure of areas and processes. On the right is the 'Alarm Table' view, which is currently showing 'Current Alarms'. The table has columns for PV, Description, Time, Current Severity, Severity, Status, and Value. A 'Filter' input field is located above the table. Below the current alarms table is the 'Acknowledged Alarms' table, which also has the same columns. Three callout boxes provide instructions: 'Select by Name, Description' points to the table's search area, 'Sort by Time, Severity, ...' points to the table's column headers, and 'Acknowledge' points to a checkmark icon in the top right corner of the table window.

Alarm Tree

- Area: BeamPermit (MAJOR/major-ack'ed/LOLO_ALARM)
 - PV: FE_MPS:MIOC1A:status_sum (MAJOR/major-ack'ed)
 - PV: ICS_Tim:Gate_BeamOn:Switch (MINOR/minor-ack'ed)
- Area: CF (MINOR/MINOR/HIGH_ALARM)
- Area: Diagnostics (OK/OK/OK)
- Area: HP_Mod_Smoke (OK/OK/OK)
- Area: HP_Mod_V_Mon (OK/OK/OK)
- Area: HPRF_PLC_Check (OK/OK/OK)
- Area: HPRF_Rack_Sts (OK/OK/OK)
- Area: ICS (OK/OK/OK)
- Area: MPS (OK/OK/OK)
- Area: PPS (OK/OK/OK)
- Area: Timing (OK/OK/OK)
- Area: Tunnels (OK/OK/OK)
- Area: Water_Pump (OK/OK/OK)
- Area: IonSource (OK/OK/OK)
- Area: LEBT (OK/OK/OK)
- Area: RFQ (OK/OK/OK)
- Area: MEBT (MAJOR/MAJOR/LOLO_ALARM)
- Area: DTL (OK/OK/OK)
- Area: CCL (OK/OK/OK)
- Area: SCL (OK/OK/OK)
- Area: HEBT (MAJOR/major-ack'ed/LOLO_ALARM)
- Area: RID (OK/OK/OK)
- Area: Ring (OK/OK/OK)
- Area: RTBT (OK/OK/OK)
- Area: Target (INVALID/invalid-ack'ed/READ_ALARM)
- Area: Test (OK/MAJOR/HIHL_ALARM)
 - System: LLRF (OK/OK/OK)
 - PV: Instr_BmLn:XXSTATE5216A:Sts (OK/OK/OK)
 - PV: RFQ_Vac:Pump2:Pressure (OK/MAJOR/HIHL_ALARM)
 - PV: RFQ_Vac:Pump3:Pressure (OK/MINOR/HIGH_ALARM)
 - PV: RFQ_Vac:Pump4:Pressure (OK/MINOR/HIGH_ALARM)
 - PV: RFQ_Vac:Pump5:Pressure (OK/MINOR/HIGH_ALARM)
 - PV: RFQ_Vac:Pump6:Pressure (OK/MINOR/HIGH_ALARM)

Alarm Table

Current Alarms

PV	Description	Time	Current Severity	Severity	Status	Value
CF_KL:DIWS_AIT4303B:Rs	CF_KL:DIWS_AIT4303B:Rs	2009/03/17 16:10:06	MINOR	MINOR	HIGH_ALARM	18.5
RFQ_Vac:Pump2:Pressure	Demo pump 2	2009/03/17 16:09:46	OK	MAJOR	HIHL_ALARM	9.0
RFQ_Vac:Pump6:Pressure	Demo pump 6	2009/03/17 16:09:44	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump5:Pressure	Demo pump 5	2009/03/17 16:09:44	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump4:Pressure	Demo pump 4	2009/03/17 16:09:44	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump3:Pressure	Demo pump 3	2009/03/17 16:09:44	OK	MINOR	HIGH_ALARM	5.0
MEBT_CHOP:PS_2:V	mebbit chopper power supply two voltage fault	2009/03/16 19:05:10	MAJOR	MAJOR	LOLO_ALARM	0.000

Acknowledged Alarms

PV	Description	Time	Current Severity	Severity	Status	Value
TMod:Summary_MPS:Alarm	Moderator System MPS Trip	2009/03/16 19:05:09	INVALID	invalid-ack'ed	READ_ALARM	Ready
MEBT_CHOP:PS_1:V	mebbit chopper power supply one voltage fault	2009/03/16 19:05:10	MAJOR	major-ack'ed	LOLO_ALARM	0.000
HEBT_Coll:CT2:Cond	HEBT_Coll:CT2:Cond	2009/03/16 19:05:10	MAJOR	major-ack'ed	LOLO_ALARM	0.017
FE_MPS:MIOC1A:status_sum	MPS Beam permit	2009/03/17 16:05:00	MAJOR	major-ack'ed	LOLO_ALARM	2
ICS_Tim:Gate_BeamOn:Switch	Beam awf	2009/03/17 16:04:59	MINOR	minor-ack'ed	STATE_ALARM	Shifted

BOY – Best OPI, Yet

Operator Interface Editor

The screenshot shows the BOY Operator Interface Editor in a window titled "Control System Studio (SNS)". The interface includes a menu bar (File, Edit, CSS, Window, Help), a toolbar, and several panels:

- Navigator:** A tree view on the left showing a project structure with folders like "BOY Demo" and "BOY Examples", and files such as "1_2_WidgetExamples.opi".
- Canvas:** A central workspace containing various widgets including a "Title" label, "LinkText", "Monitors" (with gauges and meters), and "Controls" (with buttons and sliders).
- Properties:** A panel on the right showing the configuration for the selected widget. It includes sections for "Basic" (Name: Tank, PV Name: simu//ramp(0,100,1)), "Behavior" (Actions: no action), "Border" (Alarm Sensiti: no, Border Color: #0128,255), and "Display" (3D Effect: checked).
- Console:** A bottom panel displaying system messages, including an error: "2011-06-15 12:15:16 ERROR: Failed to run opi /BOY Examples/main2.opi java.lang.Exception: Cannot open \BOY Examples\main2.opi (The system c".

Runtime

The screenshot shows the BOY Operator Interface Runtime in a window titled "Control System Studio (SNS)". The interface displays the same widgets as the editor, but in a live state:

- Monitors:** The gauges and meters now show real-time data. For example, a gauge shows a value of 77, and a thermometer shows 48.1.
- Controls:** The buttons and sliders are interactive. A "STOP" button is highlighted, and a "Select Menu..." dropdown is open.
- XY Graph:** A graph titled "Intensity Graph" shows a sine wave with a red trend line. The x-axis is labeled "Time" and the y-axis is "Amplitude".
- Status:** The bottom right corner indicates "Not logged in".

- Select widget, enter PV name, done
- No programming, no compilation, ...

SNS Examples

- Top-level displays created by operators

SNS Operations

Power on Target
954.41 kW

05/26/10 11:18:16

Ramp/Beam On	Beam Gate	Avg Current	Max Current	Rep Rate
50 774	850	21.8 mA	43.7 mA	59.9 Hz

PW On Flavor 1 I-Dump Charge

Linac RF Status	44	1.8E-7 C	
RFQ	1 2 3 4	1 2 3 4 5 6	1 2 3 4
RF	1 2 3 4	RF M3 M5	M1 M2 M3 M4
RF	X1 X2 X3 X4	X5 X6	X1 X2 X3 X4

XMTR	Modulator	Cavities											
01	SCL 01	01a	01b	01c	02a	02b	02c	03a	03b	03c	04a	04b	04c

SNS Central Control Room

05/26/10 10:37:56

Beam Image at Foil

774 Bunches **Energy 925 MeV**

Rep Rate **Beam To**
59.9 Hz **Target**

Power on Target
952 kW

Primary Shutter Status

USANS	NOMAD	BASIS
SNAP	Magnetism	Liquids
CNCS	EQ-SANS	VULCAN
8	CORELLI	10
POWGEN	MaNDi	TOPAZ
FNPB	HYSPEC	NSE
VISION	SEQUOIA	ARCS

12-Hour Beam Power On Target

Beam Image at Target

Beam Size at Target

Horizontal	42.81 mm
Vertical	25.36 mm

Power on Target
952 kW

07b 07c

10c 11a

13c 13d

16a 16b

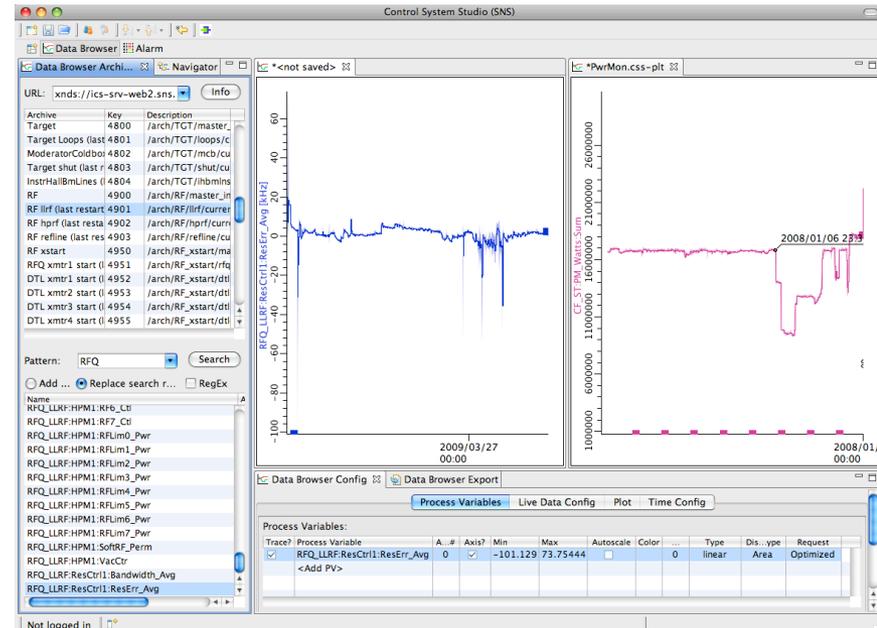
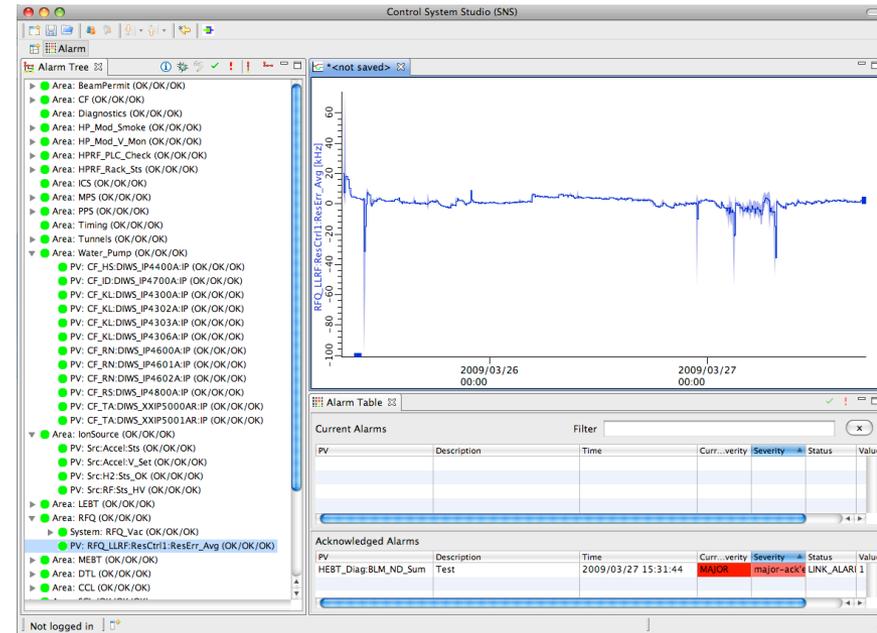
18c 18d

21a 21b

23c 23d

Flexible Layout

- Panels can be closed, reopened, repositioned
- Multiple Perspectives
 - Name, Save, Restore
- Multiple document instances share same configuration panels



CSS PV Exchange

- PV in any CSS Tool
 - Context Menu → Select other PV Tools
 - Opens other tool with that PV

The screenshot shows the 'Alarm Table' window with two sections: 'Current Alarms' and 'Acknowledged Alarms'. The 'Current Alarms' section contains a table with columns: PV, Description, Time, Current Severity, Severity, Status, and Value. The 'Acknowledged Alarms' section contains a similar table.

PV	Description	Time	Current Severity	Severity	Status	Value
RFQ_Vac:Pump2:Pressure	Demo pump 2	2009/03/17 16:48:10	OK	MAJOR	HIHI_ALARM	9.0
RFQ_Vac:Pump6:Pressure	Demo pump 6	2009/03/17 16:48:08	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump5:Pressure	Demo pump 5	2009/03/17 16:48:08	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump4:Pressure	Demo pump 4	2009/03/17 16:48:08	OK	MINOR	HIGH_ALARM	5.0
RFQ_Vac:Pump3:Pressure	Demo pump 3	2009/03/17 16:48:08	OK	MINOR	HIGH_ALARM	5.0
FE_MPS:MIOC1A:status_sum	MPS Beam permit	2009/03/17 16:46:28	MAJOR	MAJOR	LOLO_ALARM	2
ICS_Tim:Gate_BeamOn:Switch	Beam awf	2009/03/17 16:46:27	MINOR	MINOR	STATE_ALARM	Shift
CF_KL:DIWS_AIT4303B:Rs	CF_KL:DIWS_AIT4303B:Rs	2009/03/17 16:10:06	MINOR	MINOR	HIGH_ALARM	18.5
MEBT_CHOP:PS_2:V	mebbit chopper power supply two voltage fault		MAJOR	MAJOR	LOLO_ALARM	0.00

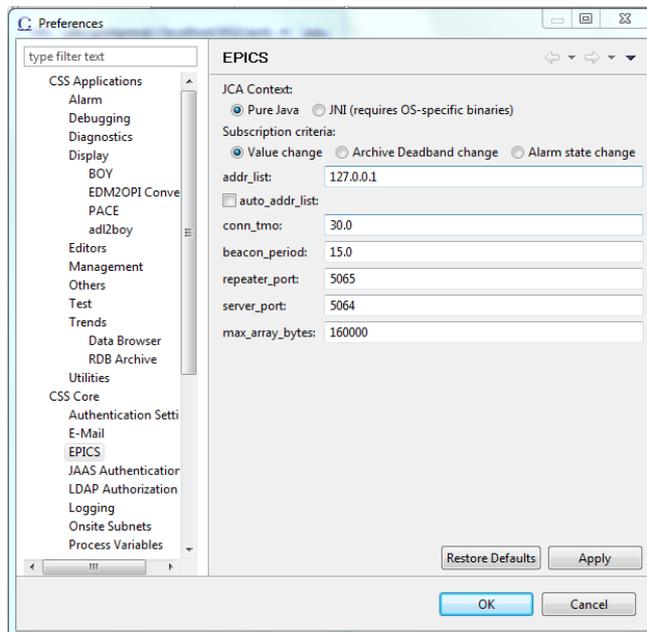
PV	Description	Time
TMod:Summary_MPS:Alarm	Moderator System MPS Trip	2009/03/17 16:48:10
MEBT_CHOP:PS_1:V	mebbit chopper power supply one voltage fault	2009/03/17 16:48:10
HEBT_Coll:CT2:Cond	HEBT_Coll:CT2:Cond	2009/03/17 16:48:10

The context menu for 'MEBT_CHOP:PS_2:V' includes the following items:

- 21:44:56
- Check MEBT PS 2 Chopper
- MEBT Chopper PS 2 Screen
- Logbook...
- Acknowledge
- Copy Pv Name to Clipboard
- CSS** (highlighted)
 - Data Browser
 - Data Browser View
 - PV Table
 - Rack View
 - PV Utility
 - PV Fields Viewer
 - Probe
 - EPICS PV Tree
- Configure Item
- Auto-size Columns
- Alarm Perspective

Integrated Help, Preferences

- Uniform access to settings,
searchable help
 - Applications
 - Support Libraries
 - Logging
 - Control System access

A screenshot of the 'Help - Csx' window. The left sidebar shows a tree view with 'EPICS Library' selected under 'CSS Core'. The main content area displays the 'EPICS Library' page, which includes a description of the ChannelAccess (CA) client library and a 'Preferences' section. The 'Preferences' section lists two main items to configure: 'JCA Context' and 'addr_list and auto_addr_list'. The 'JCA Context' section explains that there are pure Java and JNI implementations, with pure Java being the default. The 'addr_list and auto_addr_list' section explains how to configure the 'addr_list' field with IP addresses of IOCs or subnets, and how to manage the 'auto_addr_list' checkbox. A note at the bottom states that changes require a restart of the application.

Search: Go [Scope](#): All topics

Content

- CSS Applications
 - Display
 - PACE Editor
 - EDM2OPI Converter
 - RDB Table Editor
 - adl2Boy - Converter
 - PV Table
 - Best OPI Yet (BOY)
 - Alarm
 - Trends
 - Data Browser
 - Diagnostic Tools
 - Debugging
 - Management
 - Editors
 - Utilities
 - Test
 - Other
- CSS Core
 - User Interface
 - Preferences
 - EPICS Library**
 - E-Mail
 - Process Variables
- SNS CSS
 - SNS CSS Overview

[CSS Core >](#)

EPICS Library

This provides the ChannelAccess (CA) client library for accessing Process Variables on EPICS IOCs via the network.

Preferences

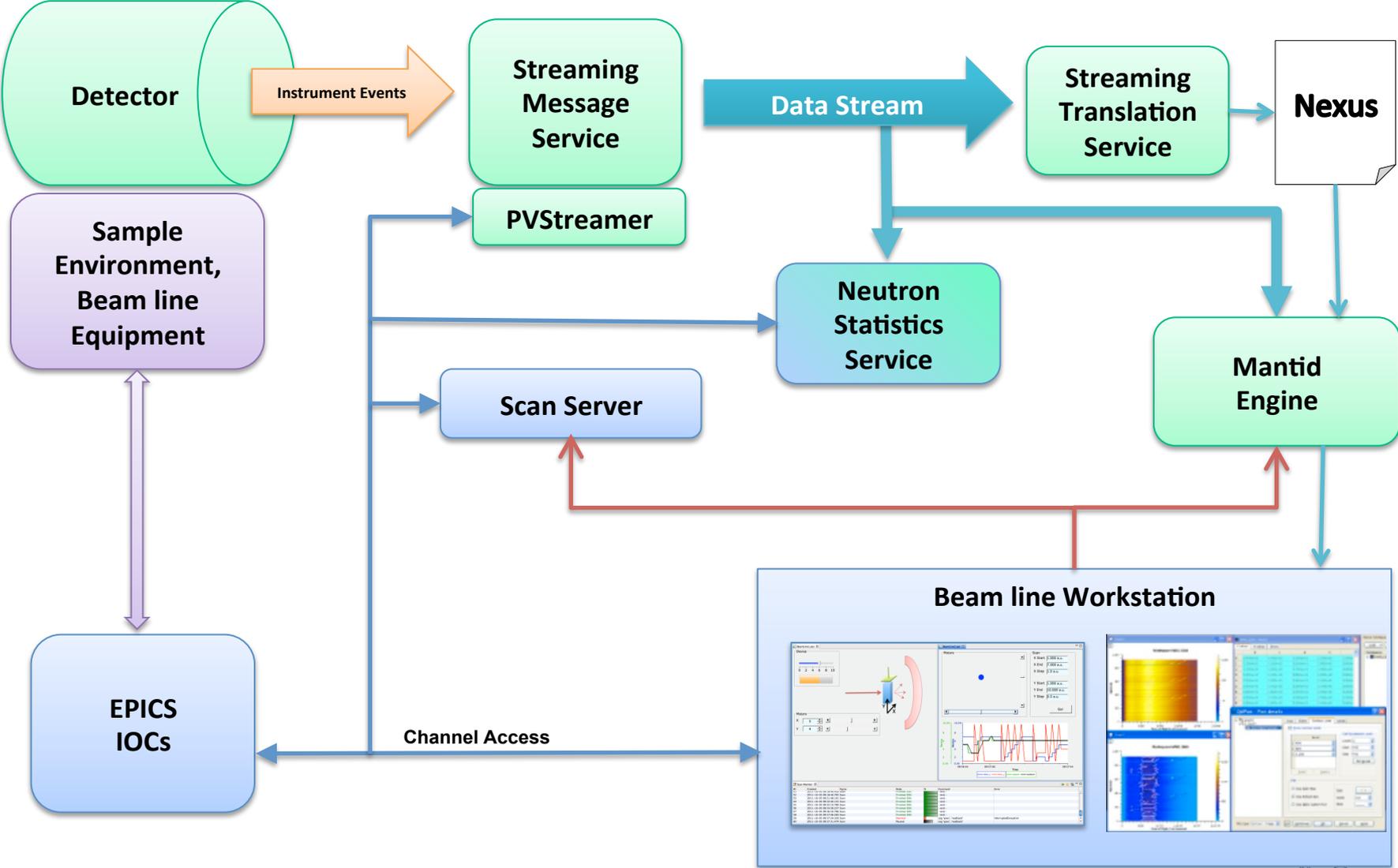
There are two main items to configure:

- **JCA Context:**
There is a pure Java as well as a JNI implementation available. The pure Java version is the default because it is easier to install and should work "out of the box", while the JNI implementation might provide maximum compatibility with existing EPICS installations.
- **addr_list and auto_addr_list**
If all CA servers (IOCs) are on the same subnet as the computer running the CSS application, you can stay with the default: Empty `addr_list`, using `auto_addr_list`. Otherwise, if you need to access PVs on a gateway or in another subnet, list the IP addresses of IOCs or IOC subnets in the `addr_list`, and un-check the `auto_addr_list`. For details on this as well as the remaining settings, refer to the EPICS Channel Access reference manual.

Note that changes require a restart of the application, they do not take effect at runtime!

Default Settings

Instrument Automation w/ Scan Server



“Scan” from BOY

1. Configure

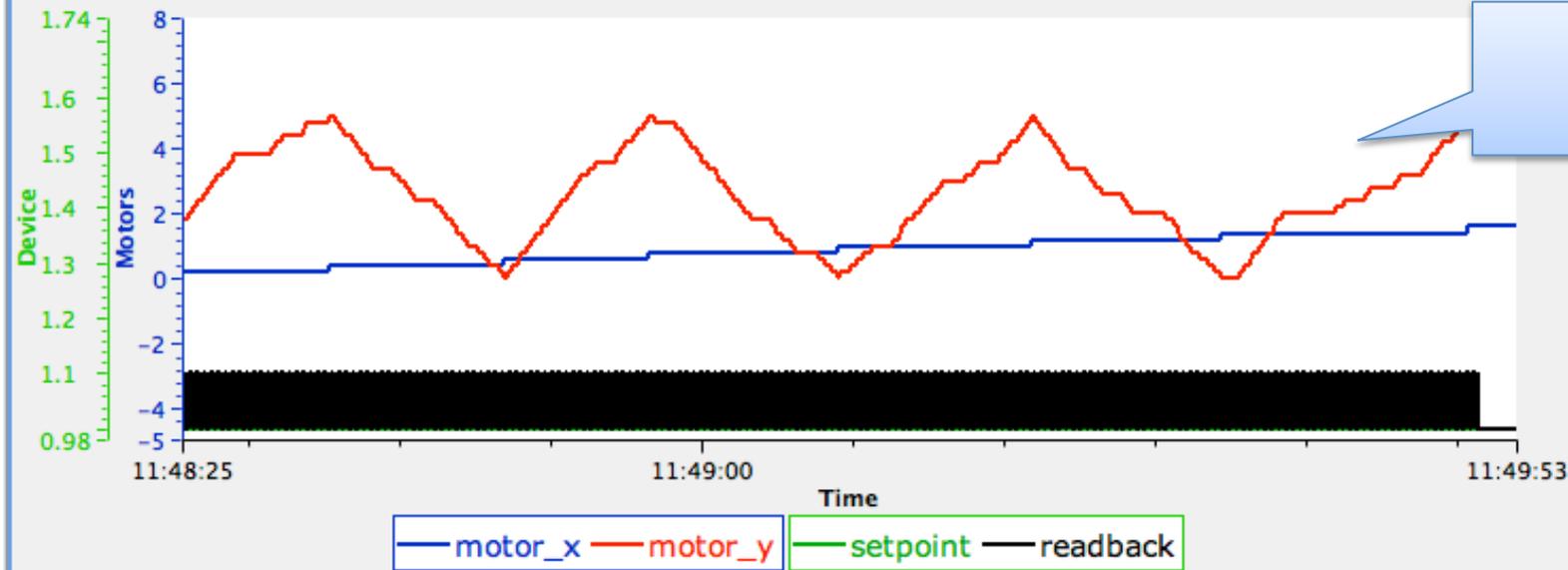
The interface is divided into three main sections:

- Beam:** Shows a green circle for the beam status, a blue square for the shutter, and a counter for neutrons at 336,338.
- Motors:** A large blue circle represents the motor position, with navigation arrows for manual control.
- Scan:** A configuration panel for the scan parameters:

	X	Y
Start	0.0 a.u.	0.0 a.u.
End	5.0 a.u.	5.0 a.u.
Step	0.200 a.u.	0.200 a.u.
Neutrons	3.0 a.u.	
Name	XY Scan2	
Up/Down	<input type="checkbox"/>	
Active	<input checked="" type="checkbox"/>	

A "Go!" button is located at the bottom right of the Scan panel.

2. Start



3. Monitor

Submit Scan from Table Example

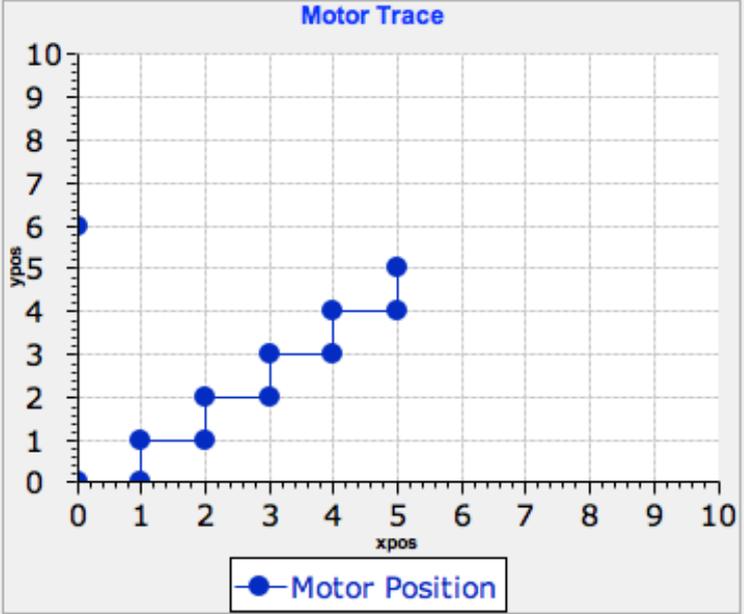
Point by Point Scan Nested Scan

Points	xpos	ypos	setpoint
Point 1	0	0	5
Point 2	1	1	10
Point 3	2	2	15
Point 4	3	3	20
Point 6	4	4	15
Point 7	5	5	10
Point 8	6	6	0

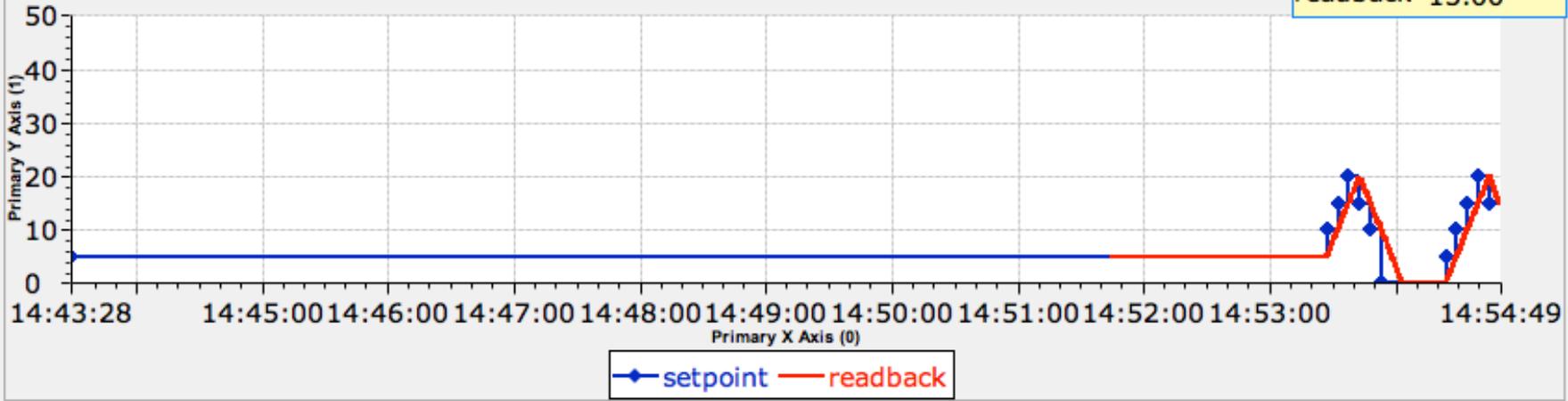
Submit Scan

in workspace
 Load from .csv ...
 Export to .csv file

Scan Running



setpoint: 10
 readback 15.00



Scan Editor

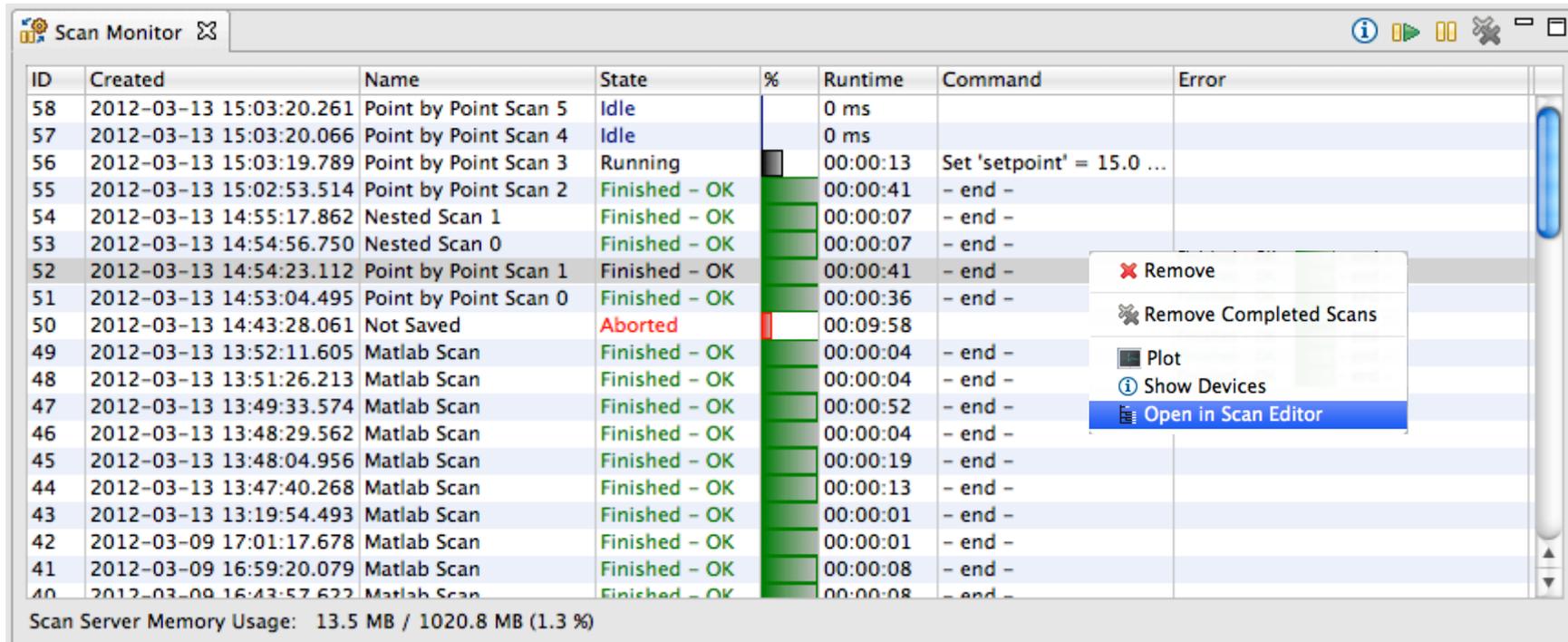
The screenshot displays the Scan Editor interface. The left pane shows a file tree with 'demo.scn' selected. The central pane shows a sequence of commands for a scan, including setting a setpoint, waiting for a readback, and looping through x and y positions. A context menu is open, with 'Submit Scan' circled in red. The right pane shows the 'Scan Command Palette' and 'Properties' panels. The 'Properties' panel shows parameters for a 'Wait' command, with 'Desired Value' and 'Tolerance' circled in red.

Annotations in the image:

- Red arrow pointing to 'demo.scn' in the file navigator with the text "Open, save".
- Red arrow pointing to 'Submit Scan' in the context menu.
- Red arrow pointing to the 'Add commands' title bar.
- Red circles around the 'Desired Value' and 'Tolerance' parameters in the Properties panel, with the text "Set parameters" below them.

- “Undo”
- Drag/drop commands or PV names (also as XML text)
- Device PVs (or alias) can be picked from beamline-specific configuration

Scan Monitor



ID	Created	Name	State	%	Runtime	Command	Error
58	2012-03-13 15:03:20.261	Point by Point Scan 5	Idle		0 ms		
57	2012-03-13 15:03:20.066	Point by Point Scan 4	Idle		0 ms		
56	2012-03-13 15:03:19.789	Point by Point Scan 3	Running		00:00:13	Set 'setpoint' = 15.0 ...	
55	2012-03-13 15:02:53.514	Point by Point Scan 2	Finished - OK		00:00:41	- end -	
54	2012-03-13 14:55:17.862	Nested Scan 1	Finished - OK		00:00:07	- end -	
53	2012-03-13 14:54:56.750	Nested Scan 0	Finished - OK		00:00:07	- end -	
52	2012-03-13 14:54:23.112	Point by Point Scan 1	Finished - OK		00:00:41	- end -	
51	2012-03-13 14:53:04.495	Point by Point Scan 0	Finished - OK		00:00:36	- end -	
50	2012-03-13 14:43:28.061	Not Saved	Aborted		00:09:58		
49	2012-03-13 13:52:11.605	Matlab Scan	Finished - OK		00:00:04	- end -	
48	2012-03-13 13:51:26.213	Matlab Scan	Finished - OK		00:00:04	- end -	
47	2012-03-13 13:49:33.574	Matlab Scan	Finished - OK		00:00:52	- end -	
46	2012-03-13 13:48:29.562	Matlab Scan	Finished - OK		00:00:04	- end -	
45	2012-03-13 13:48:04.956	Matlab Scan	Finished - OK		00:00:19	- end -	
44	2012-03-13 13:47:40.268	Matlab Scan	Finished - OK		00:00:13	- end -	
43	2012-03-13 13:19:54.493	Matlab Scan	Finished - OK		00:00:01	- end -	
42	2012-03-09 17:01:17.678	Matlab Scan	Finished - OK		00:00:01	- end -	
41	2012-03-09 16:59:20.079	Matlab Scan	Finished - OK		00:00:08	- end -	
40	2012-03-09 16:43:57.622	Matlab Scan	Finished - OK		00:00:08	- end -	

Scan Server Memory Usage: 13.5 MB / 1020.8 MB (1.3 %)

List Scans on Server

- Idle: To be executed next
- Running: With progress report
- Finished, Failed: Past runs

Thick Client vs. Web

✓ CSS: Integrated, rich, portable

Still: Needs to be installed on each user's computer..



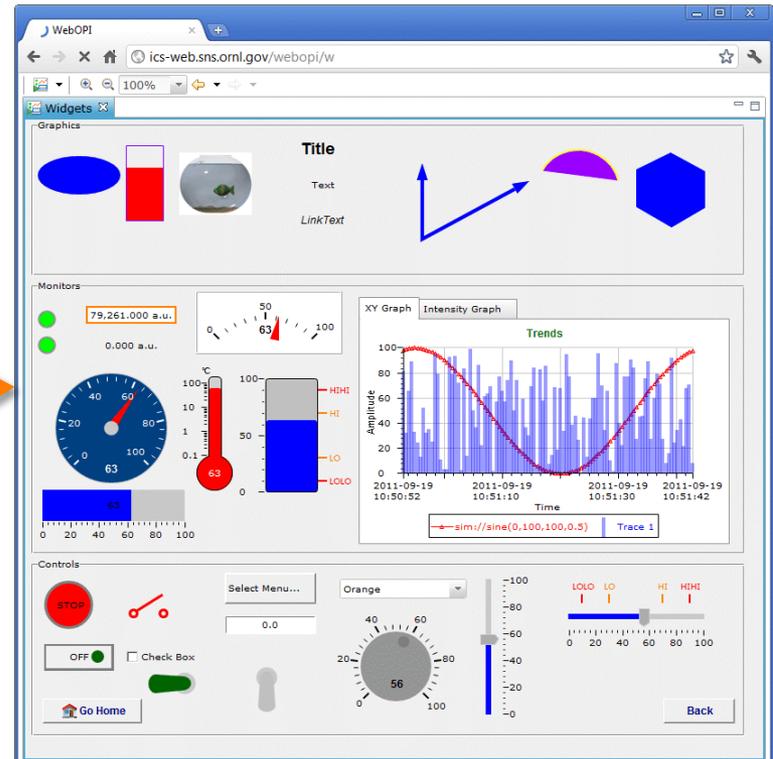
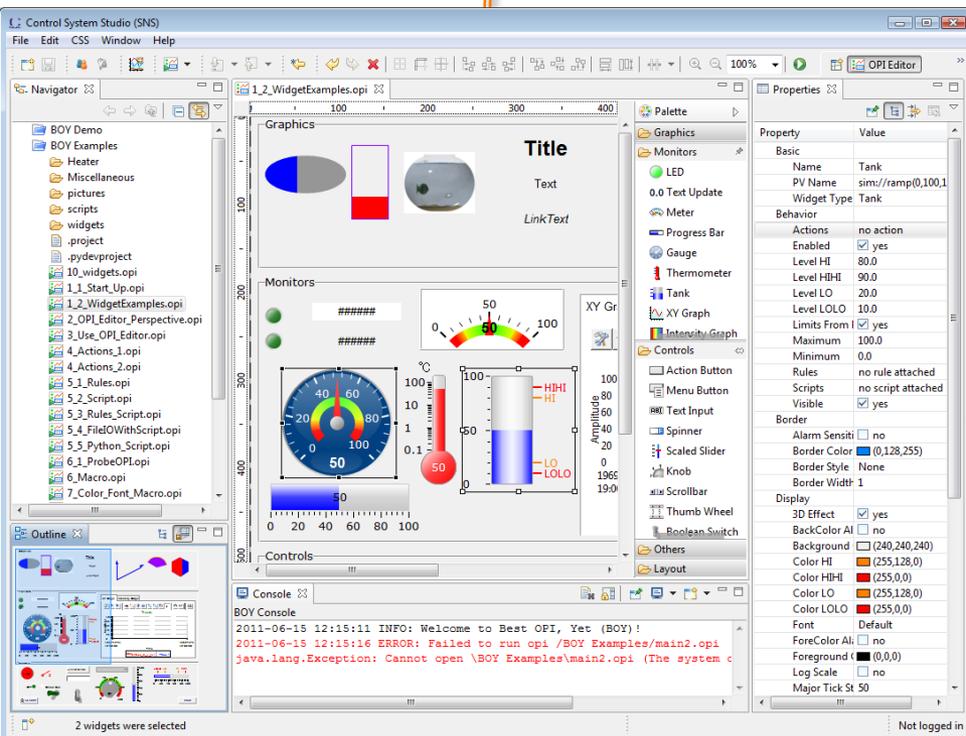
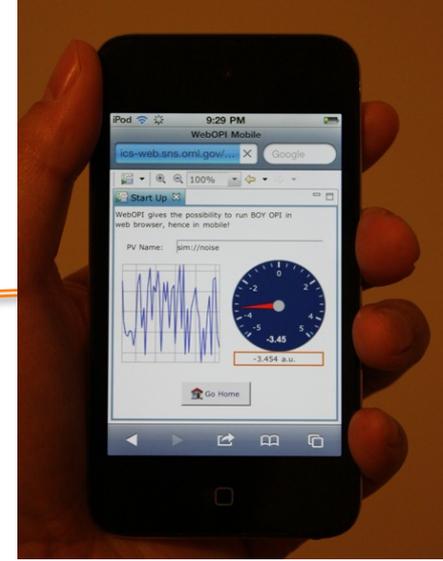
Accessible from phones, tablets, toasters?



Web OPI

CSS is Desktop app, will probably remain so, but

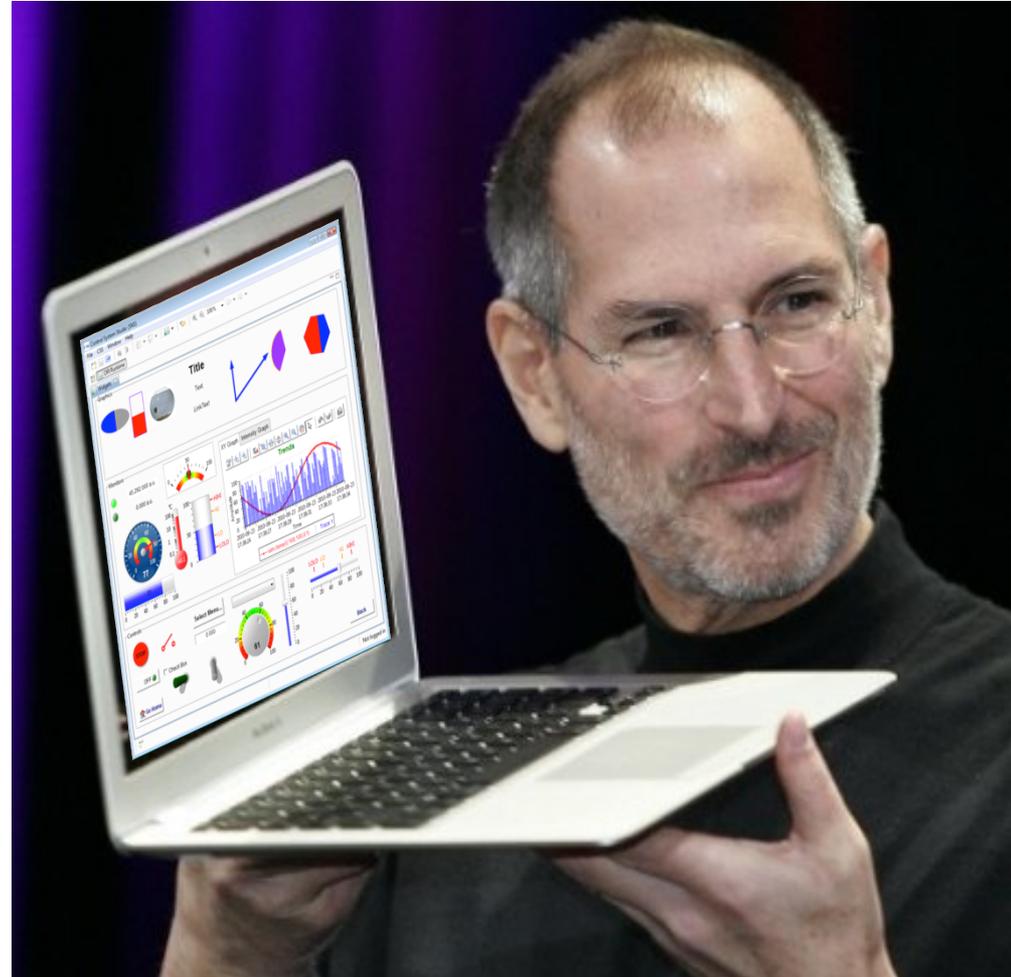
***.opi files can be viewed online!**



What is CSS?

Integration of various control-system tools into a consistent product

Excellent for end-users!



Based on
<http://buzznews.com/wp-content/uploads/2008/01/steve-jobs-presente-le-mac-book-air-lordinateur-portable-le-plus-fin-du-monde.jpg>