



# Slow-Control Experience from May Testbeam



Michael Ritzert

[michael.ritzert@ziti.uni-heidelberg.de](mailto:michael.ritzert@ziti.uni-heidelberg.de)

13<sup>th</sup> DEPFET Workshop

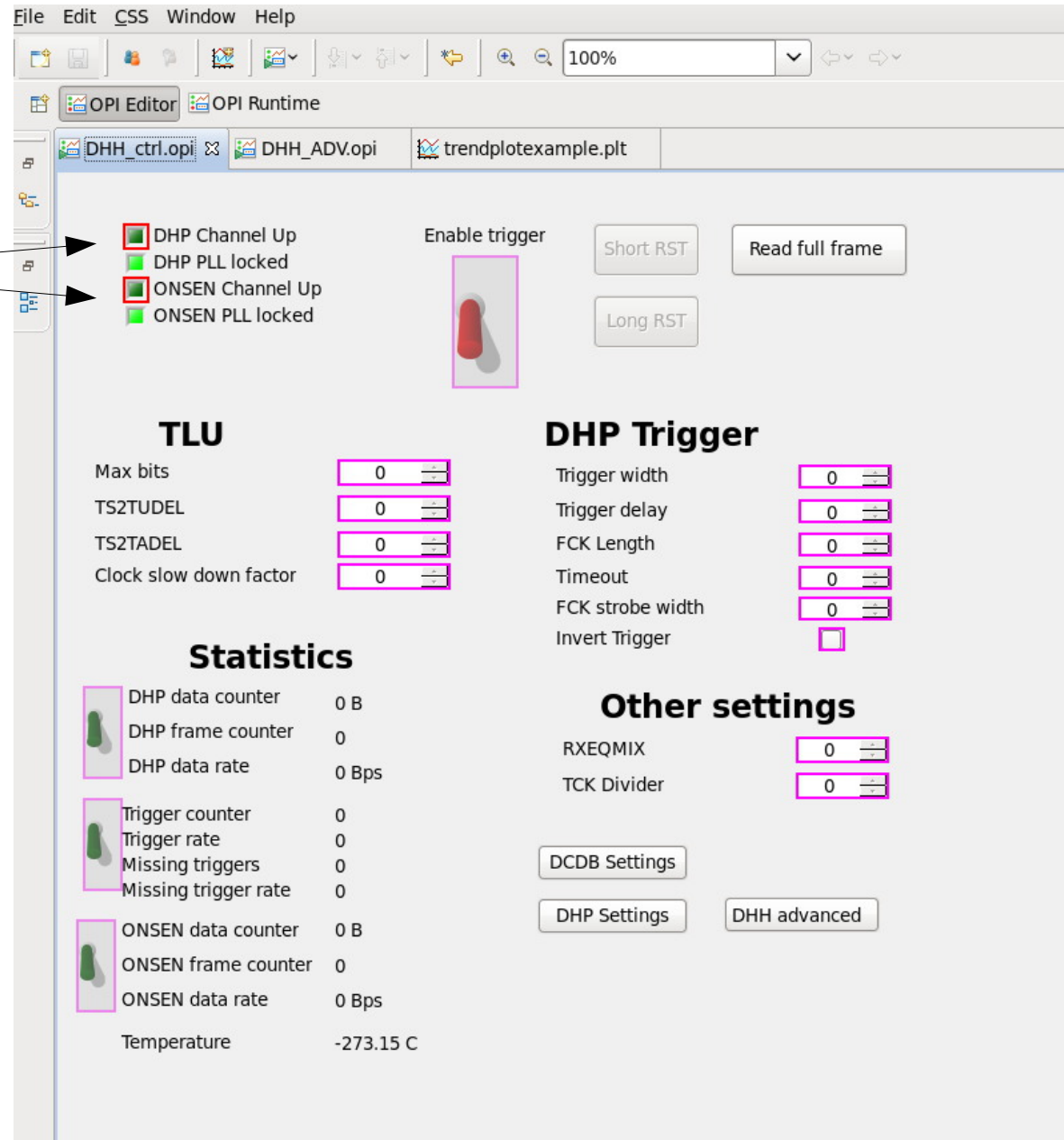
Ringberg

14.06.2013

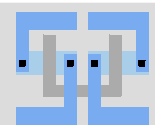
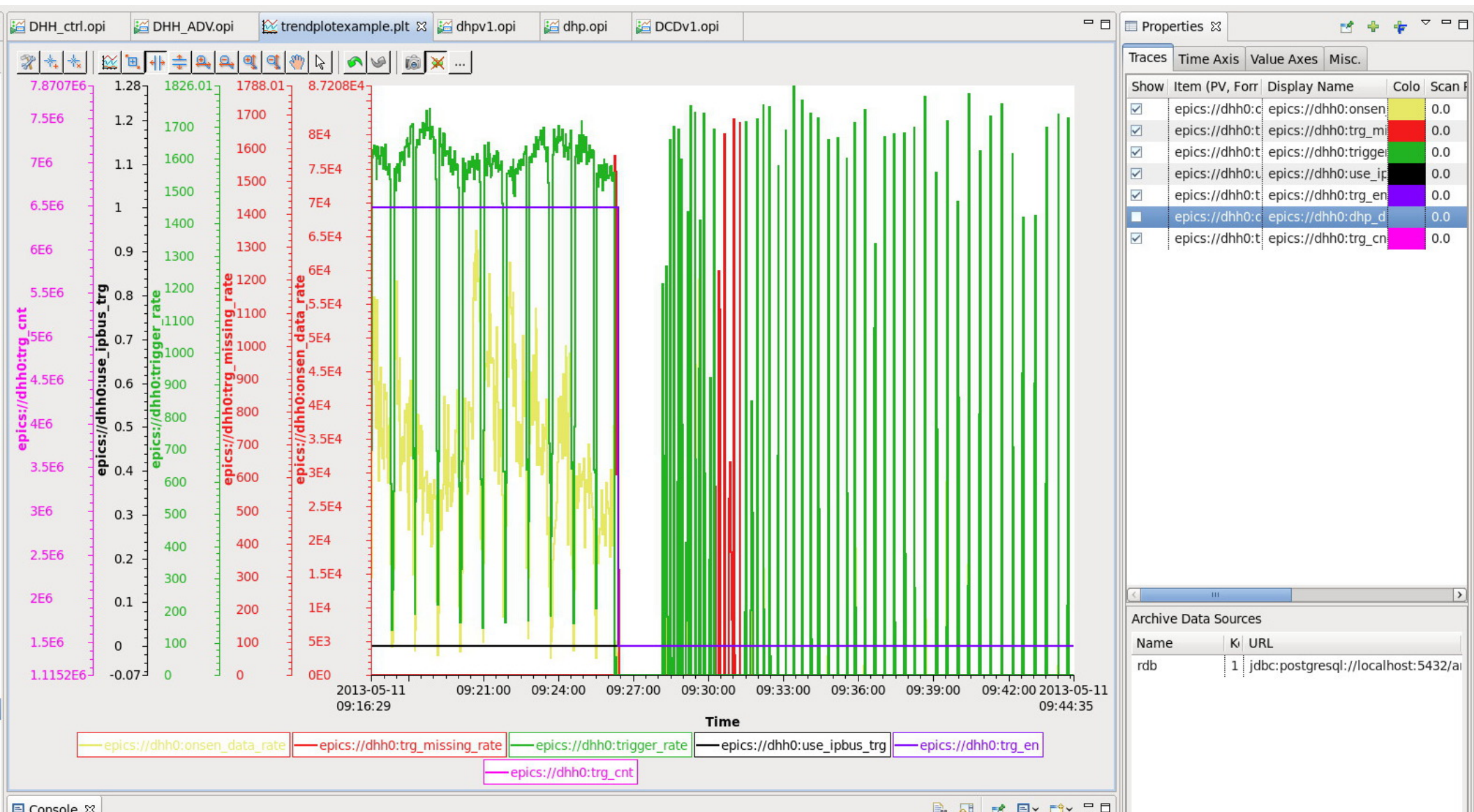
- All infrastructure and applications on one PC.
- Only DHH (ipbus and JTAG) controlled by EPICS.
- PS and ONSSEN not ready in time.
- CSS BOI screens as operator interface.
  - Some fast modifications during testbeam time.
- Alarm system monitoring PV states
- Archiver for PV values
- Trendplotter to display PV value archive
  - Some small issues known to the developers and probably fixed by now.

# Some Screenshots: Control Panel for DHH

Alarm State



# Some Screenshots: Trendplotter



# Some Screenshots: Alarm Screen

„Latching behavior“: An alarm stays active until it is acknowledged.  
Current Severity may be different from latched state.

PV	Description	Alarm Time	Current Severity	Current Status	Alarm Severity	Alarm Status	Alarm Value
epics://dhh0:dhp_channel_up	UNDEFINED alarm: epics://dhh0:dhp_channel_up	2013/05/11 11:15:445	MAJOR	LOW_ALARM	UNDEFINED	Disconnected	
epics://dhh0:dhp_pll_not_lo	UNDEFINED alarm: epics://dhh0:dhp_pll_not_locked	2013/05/11 11:15:447	OK	NO_ALARM	UNDEFINED	Disconnected	
epics://dhh0:onsen_channel	UNDEFINED alarm: epics://dhh0:onsen_channel_up	2013/05/11 11:15:447	MAJOR	LOW_ALARM	UNDEFINED	Disconnected	
epics://dhh0:onsen_pll_not	UNDEFINED alarm: epics://dhh0:onsen_pll_not_locked	2013/05/11 11:15:446	OK	NO_ALARM	UNDEFINED	Disconnected	
epics://dhh0:trg_missing_ra	UNDEFINED alarm: epics://dhh0:trg_missing_rate	2013/05/11 11:15:445	OK	NO_ALARM	UNDEFINED	Disconnected	

Acknowledged Alarms (0)



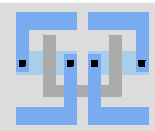
# Not used during Testbeam, but working: Message Log

The screenshot shows the 'Message History' window in the CSS application. The window has a menu bar (File, Edit, CSS, Window, Help) and a toolbar. Below the toolbar, there are tabs for 'Properties' and 'Message History'. The 'Message History' tab is active, displaying a table of messages. The table has columns: SEQ, TIME, DELTA, TYPE, TEXT, NAME, STATUS, SEVERI, CURRE, VAL, CREATETIM, USER, HOST, APPL, CLASS, and FILE. The messages are sorted by time, with the most recent at the top. The messages include various log entries, warnings, and errors, such as 'User logged in: test', 'Failed to read font definition file', 'Failed to read color definition file', 'Anonymous login', 'dispose', 'inputChanged', 'JMS Log Tool started', 'Error exists in script', 'The image could not be loaded', 'Unable to resolve plug-in', 'Failed to load image', 'Plugin org.csstudio.opibuilder.tools, exten', 'Error exists in script /tests/scripts/runDCD', 'Error exists in script /tests/scripts/runDCD', 'Error exists in script /tests/scripts/runDCD', 'Failed to execute Python Script: /tests/scr', 'Plugin org.csstudio.opibuilder.tools, exten', 'Unable to resolve plug-in', 'Ignored attempt to add saveable that was', 'Unable to create editor ID org.csstudio.op', 'The image could not be loaded: URLImage', 'Unable to resolve plug-in', 'Plugin org.csstudio.opibuilder.tools, exten', 'Plugin org.csstudio.opibuilder.tools, exten', 'Cannot read alarm configuration (org.poc', and 'Get Messages from RDB'. The status of the messages varies, including 'INFO', 'WARNIN', 'SEVERE', and 'ERROR'. The window also has a 'Times' and 'Filter' button in the top right corner.

SEQ	TIME	DELTA	TYPE	TEXT	NAME	STATUS	SEVERI	CURRE	VAL	CREATETIM	USER	HOST	APPL	CLASS	FILE
1	2013/06/12 10:35:04.813	00:00:13	log	User logged in: test	login		INFO			2013-06-12	ritzert	suspc1	CSS	org.cs	
2	2013/06/12 10:34:51.023	00:00:00.0	log	Failed to read font definition file. (java.lang	loadFontF		WARNIN			2013-06-12	ritzert	suspc1	CSS	org.cs	
3	2013/06/12 10:34:50.969	00:00:01	log	Failed to read color definition file. (java.lar	loadColor		WARNIN			2013-06-12	ritzert	suspc1	CSS	org.cs	
4	2013/06/12 10:34:49.212	00:00:12	log	Anonymous login	login		INFO			2013-06-12	ritzert	suspc1	CSS	org.cs	
5	2013/06/12 10:34:36.225	00:00:00.0	log	dispose	dispose		INFO			2013-06-12	ritzert	suspc1	CSS	org.cs	
6	2013/06/12 10:34:36.149	00:00:51	log	inputChanged	inputChar		INFO			2013-06-12	ritzert	suspc1	CSS	org.cs	
7	2013/06/12 10:33:44.166	905:14:22	TYPE	JMS Log Tool started			INFO								
8	2013/05/05 17:19:21.505	00:30:25	log	Error exists in script (org.python.core.PyE	run		WARNIN			2013-05-05	camp	h1eas	CSS	org.cs	
9	2013/05/05 16:48:56.244	00:00:00.0	log	The image could not be loaded: URLImage	logging		WARNIN			2013-05-05	camp	h1eas	CSS	org.cs	
10	2013/05/05 16:48:56.192	00:22:30	log	Unable to resolve plug-in "platform:/plugir	logging		SEVERE			2013-05-05	camp	h1eas	CSS	org.cs	
11	2013/05/05 16:26:26.063	00:00:00.0	log	Failed to load image (org.eclipse.jface.res	logging		SEVERE			2013-05-05	camp	h1eas	CSS	org.cs	
12	2013/05/05 16:26:26.055	00:00:00.0	log	/icons/test.png (java.io.FileNotFoundException	logging		SEVERE			2013-05-05	camp	h1eas	CSS	org.cs	
13	2013/05/05 16:26:26.035	00:00:00.0	log	Failed to load image (org.eclipse.jface.res	logging		SEVERE			2013-05-05	camp	h1eas	CSS	org.cs	
14	2013/05/05 16:26:25.939	51:25:56	log	/icons/test.png (java.io.FileNotFoundException	logging		SEVERE			2013-05-05	camp	h1eas	CSS	org.cs	
15	2013/05/03 13:00:29.896	00:00:06	log	Unable to resolve plug-in "platform:/plugir	logging		SEVERE			2013-05-03	camp	h1eas	CSS	org.cs	
16	2013/05/03 13:00:23.491	00:00:00.0	log	Plugin org.csstudio.opibuilder.tools, exten	logging		SEVERE			2013-05-03	camp	h1eas	CSS	org.cs	
17	2013/05/03 13:00:23.447	00:40:44	log	Plugin org.csstudio.opibuilder.tools, exten	logging		SEVERE			2013-05-03	camp	h1eas	CSS	org.cs	
18	2013/05/03 12:19:39.027	00:02:00	log	Error exists in script /tests/scripts/runDCD	run		WARNIN			2013-05-03	camp	h1eas	CSS	org.cs	
19	2013/05/03 12:17:38.065	00:03:37	log	Error exists in script /tests/scripts/runDCD	run		WARNIN			2013-05-03	camp	h1eas	CSS	org.cs	
20	2013/05/03 12:14:00.738	00:00:44	log	Error exists in script /tests/scripts/runDCD	run		WARNIN			2013-05-03	camp	h1eas	CSS	org.cs	
21	2013/05/03 12:13:15.918	00:01:00	log	Error exists in script /tests/scripts/runDCD	run		WARNIN			2013-05-03	camp	h1eas	CSS	org.cs	
22	2013/05/03 12:12:15.274	00:06:22	log	Failed to execute Python Script: /tests/scr	runTask		WARNIN			2013-05-03	camp	h1eas	CSS	org.cs	
23	2013/05/03 12:05:52.512	00:00:00.0	log	Plugin org.csstudio.opibuilder.tools, exten	logging		SEVERE			2013-05-03	camp	h1eas	CSS	org.cs	
24	2013/05/03 12:05:52.485	00:00:00.9	log	Plugin org.csstudio.opibuilder.tools, exten	logging		SEVERE			2013-05-03	camp	h1eas	CSS	org.cs	
25	2013/05/03 12:05:51.578	01:44:36	log	Unable to resolve plug-in "platform:/plugir	logging		SEVERE			2013-05-03	camp	h1eas	CSS	org.cs	
26	2013/05/03 10:21:15.486	00:00:00.0	log	Ignored attempt to add saveable that was	logging		WARNIN			2013-05-03	camp	h1eas	CSS	org.cs	
27	2013/05/03 10:21:15.440	47:24:52	log	Unable to create editor ID org.csstudio.op	logging		SEVERE			2013-05-03	camp	h1eas	CSS	org.cs	
28	2013/05/01 10:56:22.531	00:00:00.0	log	The image could not be loaded: URLImage	logging		WARNIN			2013-05-01	camp	h1eas	CSS	org.cs	
29	2013/05/01 10:56:22.482	45:58:07	log	Unable to resolve plug-in "platform:/plugir	logging		SEVERE			2013-05-01	camp	h1eas	CSS	org.cs	
30	2013/04/29 12:58:14.615	00:00:00.0	log	Plugin org.csstudio.opibuilder.tools, exten	logging		SEVERE			2013-04-29	camp	h1eas	CSS	org.cs	
31	2013/04/29 12:58:14.576	00:15:02	log	Plugin org.csstudio.opibuilder.tools, exten	logging		SEVERE			2013-04-29	camp	h1eas	CSS	org.cs	
32	2013/04/29 12:43:11.728	00:20:51	log	Cannot read alarm configuration (org.poc	readConf		SEVERE			2013-04-29	camp	h1eas	CSS	org.cs	

messages sent  
by Alan  
=> pre-configured  
settings look OK

- Need to find an easy way to install the IOCs.
  - We agreed to use SL6 everywhere. Build and use binary RPMs?
- DCDB SC over JTAG did not work correctly.
  - Investigation of the problem still ongoing. Possible failure mode identified.
  - Test hardware arrived at HLL this week.
- Lost quite some logging data when the logging service was down.
  - Accidentally killed the shell, and after reboots.
  - Need to automatize the start of all services on system boot.
  - Need to monitor the services. => Nagios



- Open-source tool to monitor IT landscapes.
- Web-based UI, easy to set up.
- Easily extensible to monitor non-standard parameters
  - e.g. the availability of PVs
- Automatic notification by mail on errors.
  
- Are we interested in monitoring overall PC health on more than the SC PCs?
  - CPU and memory usage
  - Free HD space
  - Temperatures



# IOC / PV Monitoring by Icinga

The screenshot displays the Icinga web interface. At the top, a status bar shows: 2 UP, 0/0/0 DOWN, 0/0/0 UNREACHABLE, 0 PENDING, 0/2 TOTAL, 103 OK, 0/0/0 WARNING, 1/0/0 CRITICAL, 0/0/0 UNKNOWN, 0 PENDING, 1/104 TOTAL. The Icinga logo and some performance metrics are also visible.

The left sidebar contains a navigation menu with sections: General, Status, Problems, System, and Reporting. The 'Status' section is currently selected.

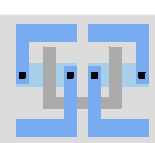
The main content area is titled 'Current Network Status' and includes a 'Commands for checked services' dropdown menu. Below this, the 'Service Status Details For All Hosts' table is shown, displaying results for host 'sussrv05-intern'.

Host	Service	Status	Last Check	Duration	Attempt	Status Information
sussrv05-intern	fs_var	OK	2013-06-12 12:49:20	0d 0h 30m 54s	1/1	OK - 8.9% used (1.63 of 18.3 GB), (levels at 80.0/90.0%), trend: +30.36KB / 24 hours
sussrv05-intern	proc_vlinac	OK	2013-06-12 12:49:20	0d 0h 30m 54s	1/1	OK - 1 processes
sussrv05-intern	vlinac PV	OK	2013-06-12 12:48:15	0d 0h 1m 59s	1/4	PV depfet:PM1:X:positionM exported by host 192.168.134.7
sussrv05-intern	vlinac bad PV	CRITICAL	2013-06-12 12:49:34	0d 0h 1m 40s	2/4	PV depfet:PM1:X:positionM2 NOT exported by host 192.168.134.7

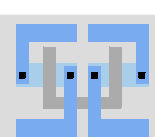
A callout box highlights the first three rows of the table, with arrows pointing to the status of each service:

- the IOC executable is running
- and it's working
- just a weird PV to show an error

- Remote access to CSS screens.
  - Simple SSH X forwarding or NX/VNC server in the SC network?
  - Web access
- Splitting of panels into operator/expert panels and corresponding access control.
- Switch to latest stable version of CSS.



- Quite successful test for EPICS/CSS SC.
- Unfortunately, only DHH controlled.
  - A few issues with the IOC fixed during the testbeam time.
- Tested CSS plugins (Trendplotting, Alarms) were easy to configure and worked well.
- Identified problems with service availability.
  - Automatic startup and monitoring next time.



Thank you!