



FRITZ-HABER-INSTITUT
MAX-PLANCK-GESELLSCHAFT

Forschungsdatenmanagement

Von der Datenaufnahme bis zum Laborbuch
(Am Beispiel der IT am Fritz-Haber-Institut)

19. April 2018, Heinz Junkes

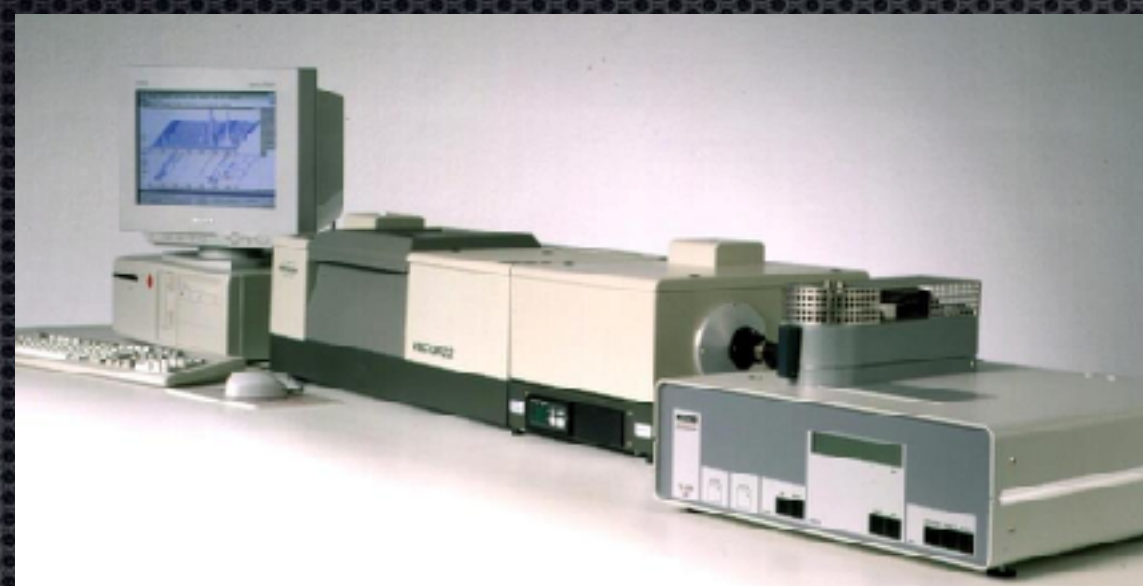


Forschungsdatenmanagement

- ✦ Konzept muss bei der Datenaufnahme beginnen.
- ✦ Nicht erst, wenn Daten *irgendwie* vorhanden sind.
 - ✦ Wo kommen die Daten her?
 - ✦ Wie wurde damit bisher umgegangen?
 - ✦ Metadaten? Nachvollziehbar? Integrität? Umgebungsparameter?



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```
./Masters/2016/04/08:  
total 0  
drwxr-xr-x 1246 heinz staff 39872 Aug 24 2016 20160408-154156  
drwxr-xr-x 415 heinz staff 13280 Aug 24 2016 20160408-160650  
  
./Masters/2016/04/08/20160408-154156:  
total 5871728  
-rw-----@ 1 heinz staff 2078667 Mar 15 2016 IMG_3978.JPG  
-rw-----@ 1 heinz staff 2030296 Mar 15 2016 IMG_3979.JPG  
-rw-----@ 1 heinz staff 2074129 Mar 15 2016 IMG_3980.JPG  
-rw-----@ 1 heinz staff 2395040 Mar 18 2016 IMG_3981.JPG  
-rw-----@ 1 heinz staff 2496720 Mar 18 2016 IMG_3982.JPG  
-rw-----@ 1 heinz staff 2449278 Mar 18 2016 IMG_3983.JPG
```

Oft (meist) black-box Systeme.



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IR-Beam
bender
quadrupole MS
ion guides
exit funnel
drift tubes
entrance funnel
nESI source
ion trap
TOF MS
Detector
bender
ion flight direction

Arrival Time Distribution
Ion intensity / a.u.
Drift time / ms
Compact structure arrives earlier
Elongated structure arrives later

Undulator
Cap
Line
Wavenum

DAS Pyro - Array
S_MEAN: 6.688E1
S_VAR: 3.593E1
S_STDV: 5.995E0
S_FWHM: 1.412E1
Min: 7.629E-5
Max: 1.956E0
Peak at: 67
FWHM: 9.397E0

Freier Elektronenlaser
Kathodenstrahlröhre
Rückstromschutz
Kathodenstrahlröhre 1
Kathodenstrahlröhre 2
Kathodenstrahlröhre 3
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Kathodenstrahlröhre 100

ptp2
appl. tag

Elektr. Laborbuch
olog, elog
(labforder)

save/restore
channelfinder

epics-framework
<http://epics-controls.org>

User



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EPICS record reference

<https://wiki-ext.aps.anl.gov/epics>

```
epics@felgate:~$ cainfo AGRAJAG:pyroArray
AGRAJAG:pyroArray
```

```
State:      connected
Host:      agrajag:5064
Access:    read, write
Native data type: DBF_DOUBLE
Request type:  DBR_DOUBLE
Element count:  130
```

```
epics@felgate:~$ caget -a AGRAJAG:pyroArray
```

```
AGRAJAG:pyroArray 2018-04-17 16:16:55.073681 130 0.0162506 0.0115204 0.0107574 ...
0.0157928 0.0163269 0.0113678 0.016861 0.0156403 0.0161743 0.0211334 0.0147247 0.012207 0 681
```

```
epics> dbpr AGRAJAG:pyroArray,4
```

```
ACKS: NO_ALARM   ACKT: YES       APST: Always    ASG:
ASP: (nil)       BKPT: 00       BPTR: 0x805a8c8  BUSY: 0
DESC:           DISA: 0        DISP: 0        DISS: NO_ALARM
DISV: 42        DPVT: 0x805ace0  DSET: 0x80502b8  DTYP: diasPyro
EGU: V         EVNT: 0       FLNK:DB_LINK AGRAJAG:shotNr
FTVL: DOUBLE    HASH: 0       HOPR: 2.5      INP:CONSTANT 20000
LCNT: 0        LOPR: 0       LSET: 0x805af90
MLIS: 88 9b 0d 08 b0 9b 0d 08 0a 00 00 00      MLOK: b0 a8 05 08
MPST: Always    NAME: AGRAJAG:pyroArray      NELM: 130
NORD: 130      NSEV: NO_ALARM   NSTA: NO_ALARM  PACT: 0
PHAS: 0       PINI: NO        PPN: (nil)     PPNR: (nil)
PREC: 4       PRIO: LOW       PROC: 0        PUTF: 0
RARM: 0       RDES: 0x809d868  RPRO: 0       RSET: 0xb7f7db60
SCAN: I/O Intr  SDIS:CONSTANT   SEVR: NO_ALARM  SIML:CONSTANT
SIMM: NO      SIMS: NO_ALARM   SIOL:CONSTANT  SPVT: 0x805b7b8
STAT: NO_ALARM  TIME: 2018-04-17 16:22:11.476845000  TPRO: 0
TSE: -2      TSEL:CONSTANT 42  UDF: 0        VAL: (nil)
```

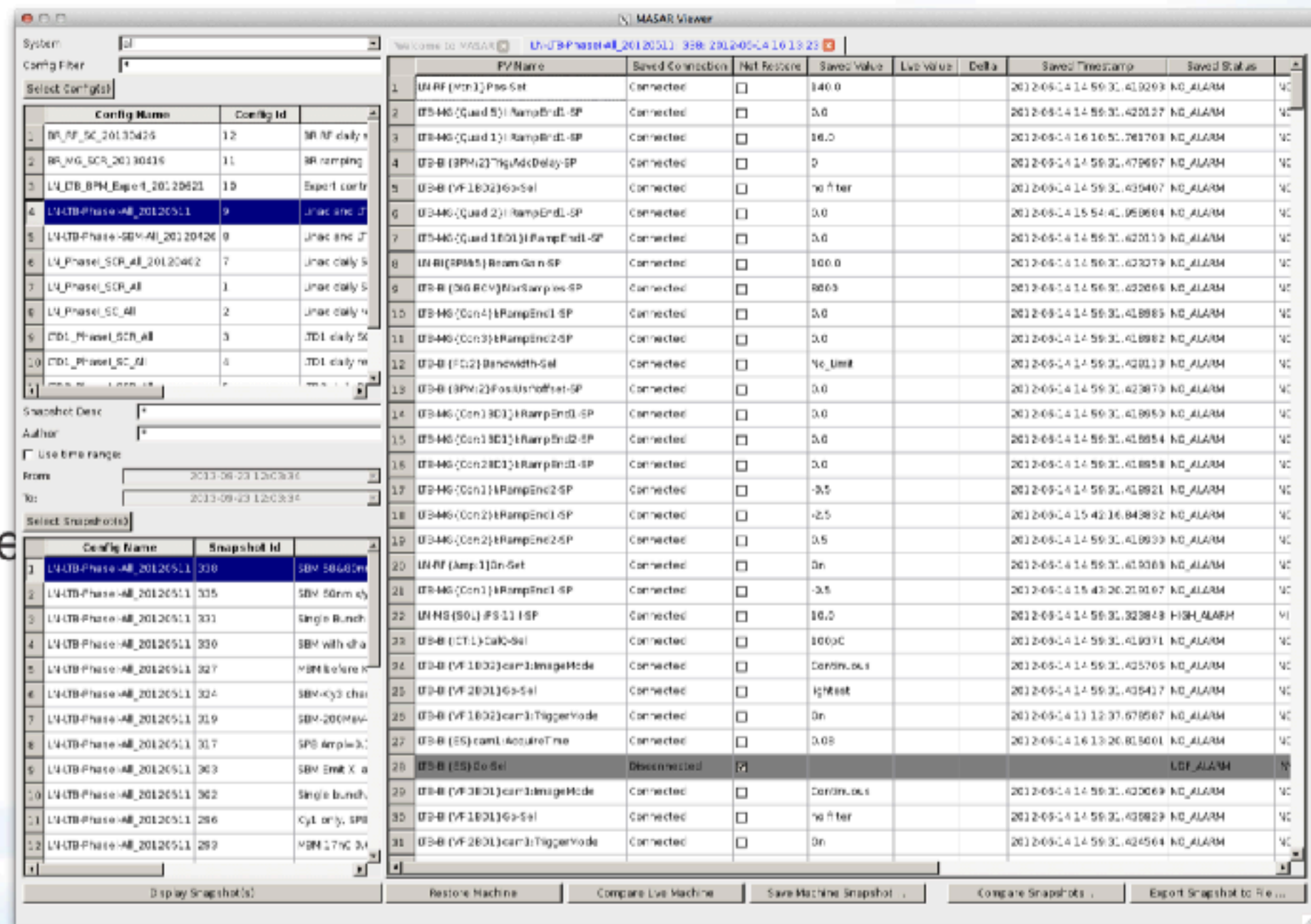


➤ API for scripting environment

- ❖ 7 APIs in Python

➤ PyQt UI

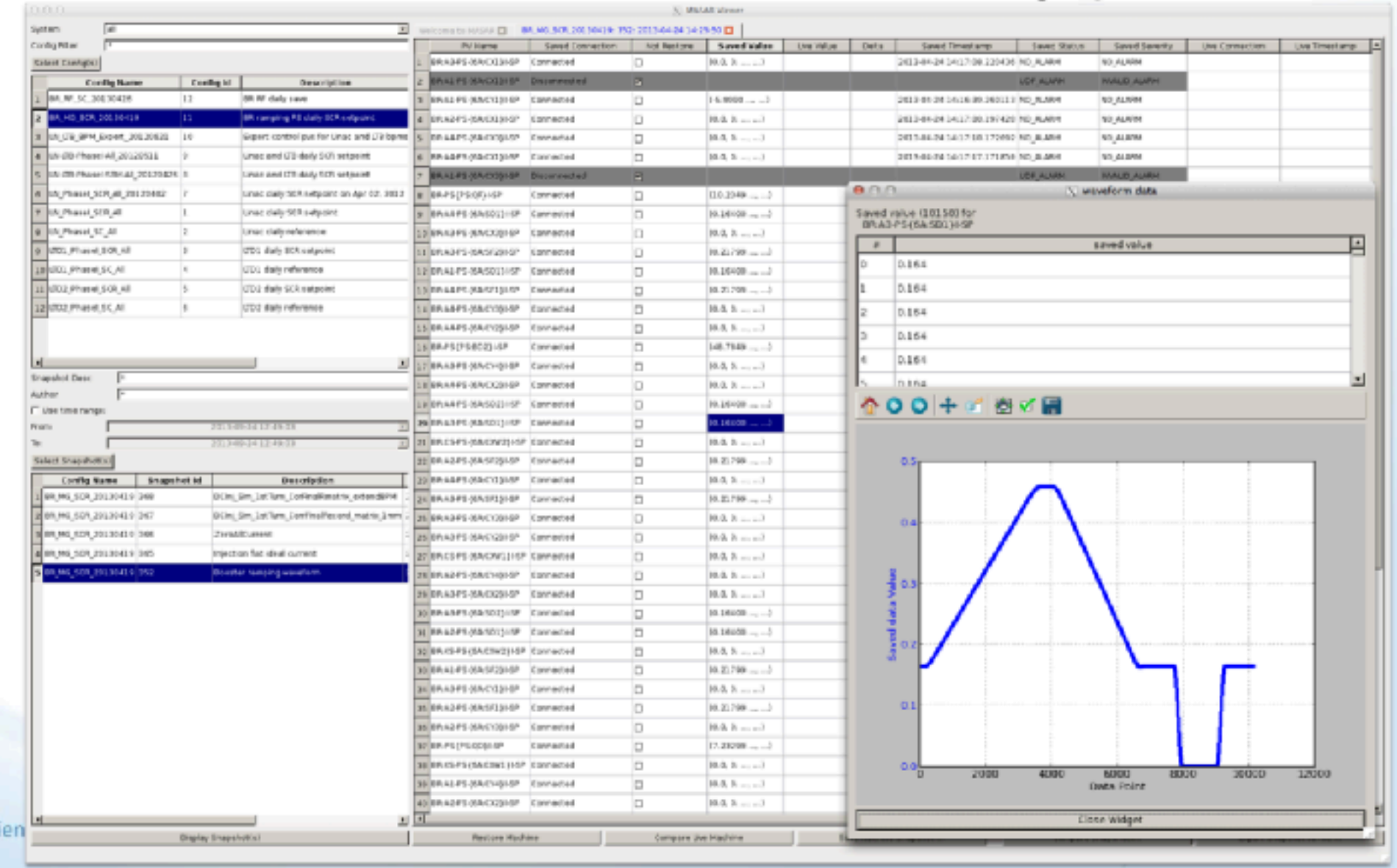
- ❖ Based on above APIs
- ❖ Browse config
- ❖ Browse event
- ❖ Take snapshot
- ❖ Retrieve data
- ❖ Compare data
- ❖ Restore machine
- ❖ Export data



Brookhaven Science Associates

➤ Data plot for waveform PV

- ❖ Saved data and live data of one waveform PV in one graph



Brookhaven Science Associates

MASAR: save&restore (<https://github.com/epics-base/masarService>)



Docs » PCASpy Documentation [Edit on GitHub](#)

PCASpy Documentation

Overview

PCASpy provides not only the low level python binding to EPICS Portable Channel Access Server but also the necessary high level abstraction to ease the server tool programming.

To get PCASpy for your system, checkout the [Installation](#) guide. Then to get started with, check out a series of [Tutorial](#). It walks through the principles of a PCASpy application. After that you should feel confident to start your adventure. If necessary consult the [Reference](#) about the API.

After you have created an application, be it generic or site specific, share your experience at [success stories](#) and let others be inspired.

Contents

- [Installation](#)
 - [Binary Installers](#)
 - [Source](#)
 - [Package](#)
- [Tutorial](#)
 - [Example 1: Expose some random number\(s\)](#)
 - [Example 2: Interface to any shell command](#)
 - [Example 3: A Simulated Oscilloscope](#)

DirectoryService channelfinder
(<https://github.com/ChannelFinder>)

Welcome to the FIII FEL channelfinder (Date: Tue Apr 17 19:38:54 CEST 2018).

Search PV :

List Disabled records :

IOC	name	PVs
iocu1	resume	PVs
iocf	resume	PVs
iocdias	fel03	PVs
iocIOCPYRO	agrajag	PVs
iocCCBERTHOLD	bacnet-gw	PVs
iocCBACNET	bacnet-gw	PVs
iocMSC	fel04	PVs
iocDIAS	fel04	PVs

PVs on iocIOCPYRO :

Name	Description	Value	HW-Host:Port	Disabled	Time taken
AGRAJAG:pyroArray		7.62939453125E-5	agrajag:5084	0	2018-01-19 13:45:28
AGRAJAG:shotNr		23	agrajag:5064	0	2018-01-19 13:45:28

Read the docs (<https://readthedocs.org>)
auf eigener Server-Instanz

Auch innerhalb der MPG verfügbar:
<https://github.molgen.mpg.de>



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Versionskontrolle (incl. Konfiguration und Algorithmen)

hg.rz-berlin.mpg.de

Mercurial

Name	Description	Contact	Last modified	zip	gz
4kSTM	control stuff (CSS and EPICS) for the 4kSTM in the CP department, Markus Heyde	Heinz Junkes	Sat, 13 Jun 2015 15:12:33 +0200	zip	gz
4kSTM/CSS	control stuff (CSS) for the 4kSTM in the CP department, Markus Heyde	Heinz Junkes	Tue, 16 Jun 2015 16:38:56 +0200	zip	gz
4kSTM/EPICS	control stuff (EPICS) for the 4kSTM in the CP department, Markus Heyde	Heinz Junkes	Mon, 27 Jun 2016 18:08:15 +0200	zip	gz
APARTVW	Apartment Verwaltung	Carla Tschentscher	Wed, 10 Feb 2016 17:36:14 +0200	zip	gz
BACnet_Plugfest	BACnet - EPICS - gateway	Heinz Junkes	Tue, 21 May 2013 20:04:30 +0200	zip	gz
BOB_CSS	New CSS bob-files (for DisplayBuilder) for FHI FEL	Heinz Junkes	Fri, 13 Apr 2018 12:31:01 +0200	zip	gz
EPICS_BACnet_Server	EPICS - BACnet - Server	Heinz Junkes	Mon, 27 May 2013 11:15:29 +0200	zip	gz
EPICS_SUPPORT/DEBPKG_MODULES/epicsBase	from debian package epics base (3.14.12)	Heinz Junkes	Mon, 09 Dec 2013 11:58:40 +0200	zip	gz
EPICS_SUPPORT/DEBPKG_MODULES/synApps	from debian packages synapps&more	Heinz Junkes	Mon, 09 Dec 2013 11:58:48 +0200	zip	gz
EPICS_SUPPORT/IMPORT_MODULES/FINS	imported Module FINS (for CMRON SPS)	Heinz Junkes	Tue, 10 Dec 2013 16:15:14 +0200	zip	gz
EPICS_SUPPORT/IMPORT_MODULES/GTR	imported Module Transient Recorder (Struck SIS3301)	Heinz Junkes	Tue, 10 Dec 2013 16:16:27 +0200	zip	gz
EPICS_SUPPORT/IMPORT_MODULES/StreamDevice	imported Module StreamDevice (serial devices)	Heinz Junkes	Mon, 09 Dec 2013 11:48:19 +0200	zip	gz
EPICS_SUPPORT/IMPORT_MODULES/areaDetector	imported Module for camera control	Heinz Junkes	Mon, 09 Dec 2013 11:48:24 +0200	zip	gz
EPICS_SUPPORT/IMPORT_MODULES/delaygen	imported Module delay generator (SR DG645)	Heinz Junkes	Mon, 09 Dec 2013 11:48:41 +0200	zip	gz
EPICS_SUPPORT/IMPORT_MODULES/seq	imported Module sequencer	Heinz Junkes	Mon, 09 Dec 2013 11:48:54 +0200	zip	gz
EPICS_SUPPORT/LOCAL_MODULES/datahandling	und noch eins fuer rapr Save/Restore, Tools und Konfiguration	Heinz Junkes	Tue, 10 Dec 2013 18:11:48 +0200	zip	gz
EPICS_SUPPORT/LOCAL_MODULES/generic	local generated module for cb-patterns (e.g. Store/Recall)	Heinz Junkes	Tue, 10 Dec 2013 18:15:55 +0200	zip	gz
EPICS_SUPPORT/LOCAL_MODULES/instruments	stream device protocols for different devices	Heinz Junkes	Tue, 10 Dec 2013 18:17:28 +0200	zip	gz
FHIFEL_CSS	CSS control-files for FHI FEL	Heinz Junkes	Mon, 11 Dec 2017 20:00:43 +0200	zip	gz
FHIFEL_IOCs	IOC programs and settings	Heinz Junkes	Tue, 18 Mar 2014 17:06:50 +0200	zip	gz
FHIFEL_IOCs/AgrajagIOC	IOC on Agrajag (PC104) controls Pyro-Array	Heinz Junkes	Thu, 29 Jan 2015 10:26:00 +0200	zip	gz
FHIFEL_IOCs/IOCBACNET-GW	IOCBACNET-GW (runs on IPC/Schaltschrank) programs and settings	Heinz Junkes	Thu, 26 Mar 2015 10:54:50 +0200	zip	gz
FHIFEL_IOCs/IOCDOSE	IOCDOSE (softIOC, controls dose meters,...) programs and settings	Heinz Junkes	Tue, 28 Oct 2014 05:27:15 +0200	zip	gz
FHIFEL_IOCs/IOCFRANKENSTEIN2	IOCFRANKENSTEIN2 (softIOC, controls Frankenstein 2) programs and settings	Heinz Junkes	Thu, 08 Oct 2015 10:25:41 +0200	zip	gz
FHIFEL_IOCs/IOCHELPH	IOCHELPH (softIOC, provisorium gun relay etc.) programs and settings	Heinz Junkes	Wed, 25 Sep 2013 13:20:57 +0200	zip	gz
FHIFEL_IOCs/IOCINFRA	IOCHELPH (softIOC, provisorium gun relay etc.) programs and settings	Heinz Junkes	Wed, 17 Aug 2016 10:06:15 +0200	zip	gz
FHIFEL_IOCs/IOCLeCroy	IOCLeCroy (softIOC, runs on fel03, controls LeCroy scope) programs and records	Heinz Junkes	Thu, 13 Aug 2015 14:24:47 +0200	zip	gz
FHIFEL_IOCs/IOCMPROT	IOCMPROT (softIOC, VM, 166), machine protection) programs and settings	Heinz Junkes	Wed, 23 Sep 2015 13:47:20 +0200	zip	gz
FHIFEL_IOCs/IOCPG9520	IOCPG9520 (softIOC, controls quantum composer clock) programs and settings	Heinz Junkes	Thu, 10 Dec 2015 13:45:31 +0200	zip	gz
FHIFEL_IOCs/IOCRIO	IOCRIO (softIOC, runs RIOs in Mezz and Diagi) programs and settings	Heinz Junkes	Thu, 07 Aug 2014 13:31:18 +0200	zip	gz

GitHub, Inc. github.com/epics-base/epics-base

15,128 commits 7 branches 109 releases 22 contributors

Branch: core/master New pull request Find file Clone or download

Switch branches/tags

Filter branches/tags

Branches Tags

- 3.14 Latest commit #712f85 26 days ago
- 3.15 to core/master 26 days ago
- 3.16 to core/master and related master branches 2 months ago
- ca/master to core/master 26 days ago
- core/master version and add 3.15 edits 2 years ago
- database/master and @TOP@ and @ARCH@ in .plt files 7 months ago
- libcom/master remove depth limit on submodules a month ago
- .gitattributes forgot to update .gitattributes 2 months ago
- .gitignore Fixes for sharing a build tree between Windows + Unix 4 months ago
- .gitmodules Removed modules/example from .git/modules for now 6 months ago
- .travis.yml modules: add pva2ova, example 7 months ago
- LICENSE Update copyright names and dates in LICENSE file. 7 years ago
- Makefile Add submodule context 7 months ago
- README Merge 3.15 into core/master and related master branches 2 months ago

README

git (https://github.com)

mercurial (https://www.mercurial-scm.org)



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Archivierung

- Monitoring aller Prozessvariablen (PV) und Speicherung bei Änderungen
- Cluster fähig (Appliance)
- Millionen von PVs, incl. Waveforms, ND-Arrays etc.
- Am FHI genutztes System: EPICS ArchiverAppliance



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FHI Archiver Appliance (aa1)

Home Reports Metrics Storage Appliances Integration Help

This is the EPICS archiver appliance management console for FHI including the FEL facility. Please contact Heinz Junkes at 4270 if you have any issues. To check the status of or to archive some PV's, please type in some PV names here.

Temp

Check Status Archive Archive (specify sampling period) Lookup Pause Resume

PV Name	Status	Appliance	Connected?	Monitored?	Sampling period	Last event	Details	Quick chart
FHI2KSTMAFM:Eurotherm:Sample Temperature	Being archived	archappl0	true	true	1.0	Apr/17/2018 19:43:27 +02:00		
FHI2KSTMAFM:M1900:Microscope Temperature	Being archived	archappl0	true	true	1.0	Apr/17/2018 19:30:27 +02:00		
FHI4KSTM:DHT:Temperature	Being archived	archappl0	true	true	1.0	Apr/17/2018 18:50:19 +02:00		
CH01:M_Temp	Being archived	archappl1	true	true	10.0	Apr/17/2018 19:27:45 +02:00		
CH01:F_Temp	Being archived	archappl1	true	true	10.0	Apr/17/2018 19:42:17 +02:00		
CH01:G_Temp	Being archived	archappl1	true	true	10.0	Apr/17/2018 13:15:01 +02:00		
CH01:H_Temp	Being archived	archappl1	true	true	10.0	Apr/17/2018 01:59:50 +02:00		
CH01:I_Temp	Being archived	archappl1	true	true	120.0	Apr/17/2018 18:35:48 +02:00		
CH01:J_Temp	Being archived	archappl1	true	true	120.0	Apr/17/2018 19:29:48 +02:00		
CH01:K_Temp	Being archived	archappl1	true	true	120.0	Apr/17/2018 19:20:48 +02:00		
CH01:L_Temp	Being archived	archappl1	true	true	120.0	Apr/17/2018 19:41:48 +02:00		
CH01:M_Temp	Being archived	archappl1	true	true	60.0	Apr/17/2018 19:42:31 +02:00		
CH01:N_Temp	Being archived	archappl1	true	true	60.0	Apr/17/2018 19:35:41 +02:00		
CH01:O_Temp	Being archived	archappl1	true	true	60.0	Apr/17/2018 19:37:21 +02:00		

EPICS Archiver Appliance Version 0.0.1_SNAPSHOT_10-January

EPICS Archive Viewer: <save>

Mirror

ADD FUNCTION C-PLOT CONFIG

Del	Plot	Name	DBRType	Units	Processing	Scale	Time (local)	Value	Notes
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	FHIFEL:BacNet:Mirror1:Temp1	DBR_SCALAR_DOUBLE	gradC		linear	2018-03-30 15:11:22	23.600000381469727	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	FHIFEL:BacNet:Mirror2:Temp2	DBR_SCALAR_DOUBLE	gradC		linear	2018-03-30 15:11:22	1638.3499755859375	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	FHIFEL:BacNet:Mirror1:Temp2	DBR_SCALAR_DOUBLE	gradC		linear	2018-03-30 15:11:22	25.399999618530273	
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	FHIFEL:BacNet:Mirror2:Temp1	DBR_SCALAR_DOUBLE	gradC		linear	2018-03-30 15:11:22	23.899999618530273	

WINDOW SIZE: 1 year 1 month 2 w 1 w 2.5 d 1 d 18 h 12 h 8 h 4 h 2 h 1 h 30 m 10 m 5 m 1 m 30 s

END: 2018-04-17 10:45:23

NOW < > AUTO

Tseries
Wform
Cplot
H-gram
Data

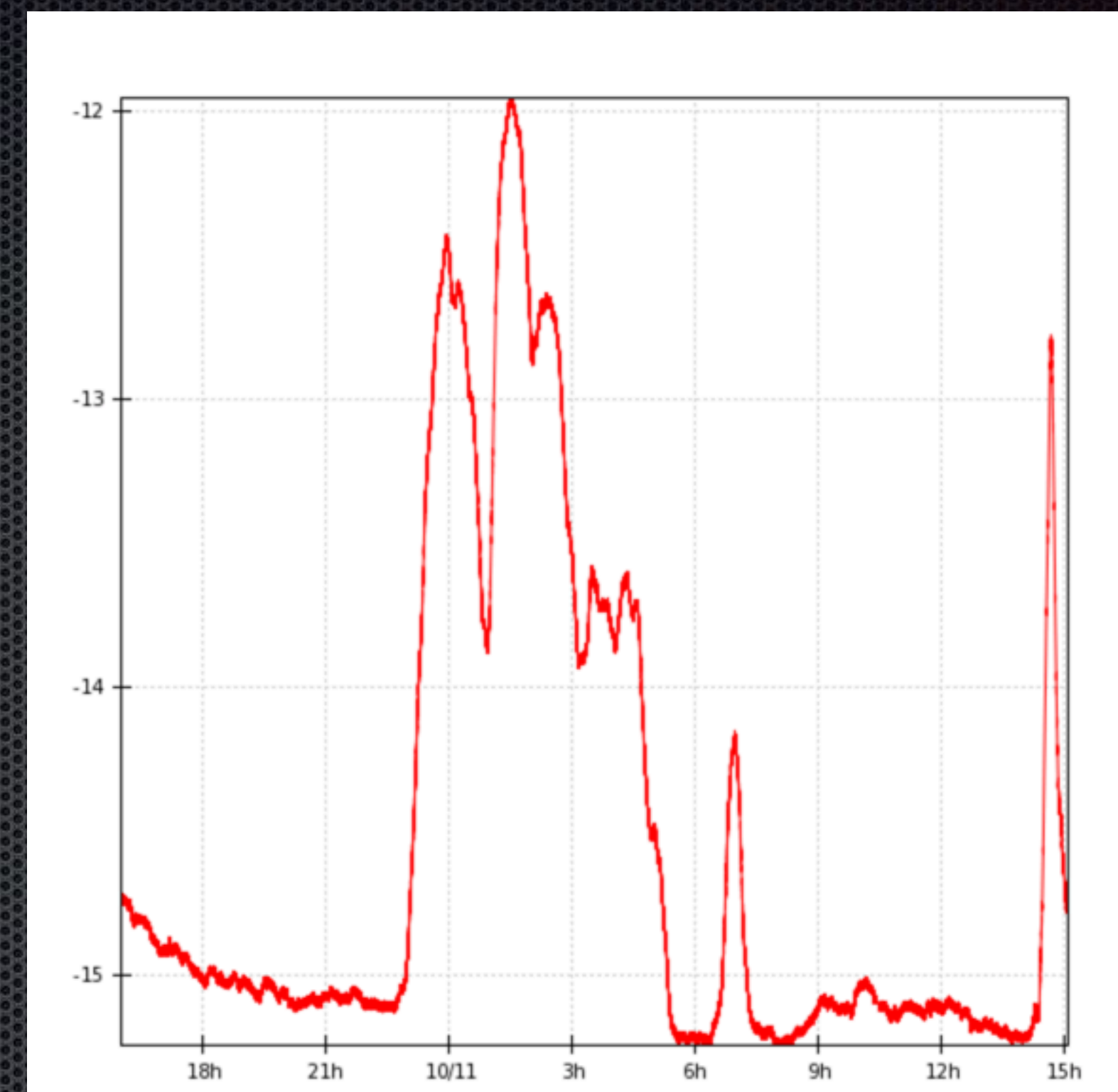
https://slacmshankar.github.io/epicsarchiver_docs/



```
import numpy as np
from chaco.shell import *
import urllib2
import json

req = urllib2.urlopen("http://archiver.slac.stanford.edu/retrieval/data/getData.json?pv=test%3Apv%3A123&donotchunk")
data = json.load(req)
secs = [x['secs'] for x in data[0]['data']]
vals = [x['val'] for x in data[0]['data']]
plot(secs, vals, "r-")
xscale('time')
show()
```

archiver retrieval



Retrieving data using other tools

The EPICS Archiver Appliance supports data retrieval in multiple formats/MIME types. These are some of the few formats supported today; more can easily be added as needed.

1. [JSON](#) - A generic JSON format that can be easily loaded into most browsers using Javascript.
2. CSV - Can be used for importing into Excel and other spreadsheets.
3. MAT - This is the file format used for interoperating with Matlab.
4. RAW - This is a binary format used by the Archive Viewer and is based on the [PB/HTTP](#) protocol.
5. TXT - A simple text format that is often helpful for debugging.
6. [SVG](#) - A XML format that can also be used as a SVG element in tools that support this format.

In general, getting data into a tool necessitates construction of a data retrieval URL as the first step. A data retrieval URL looks something like so



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Elektronisches Laborbuch

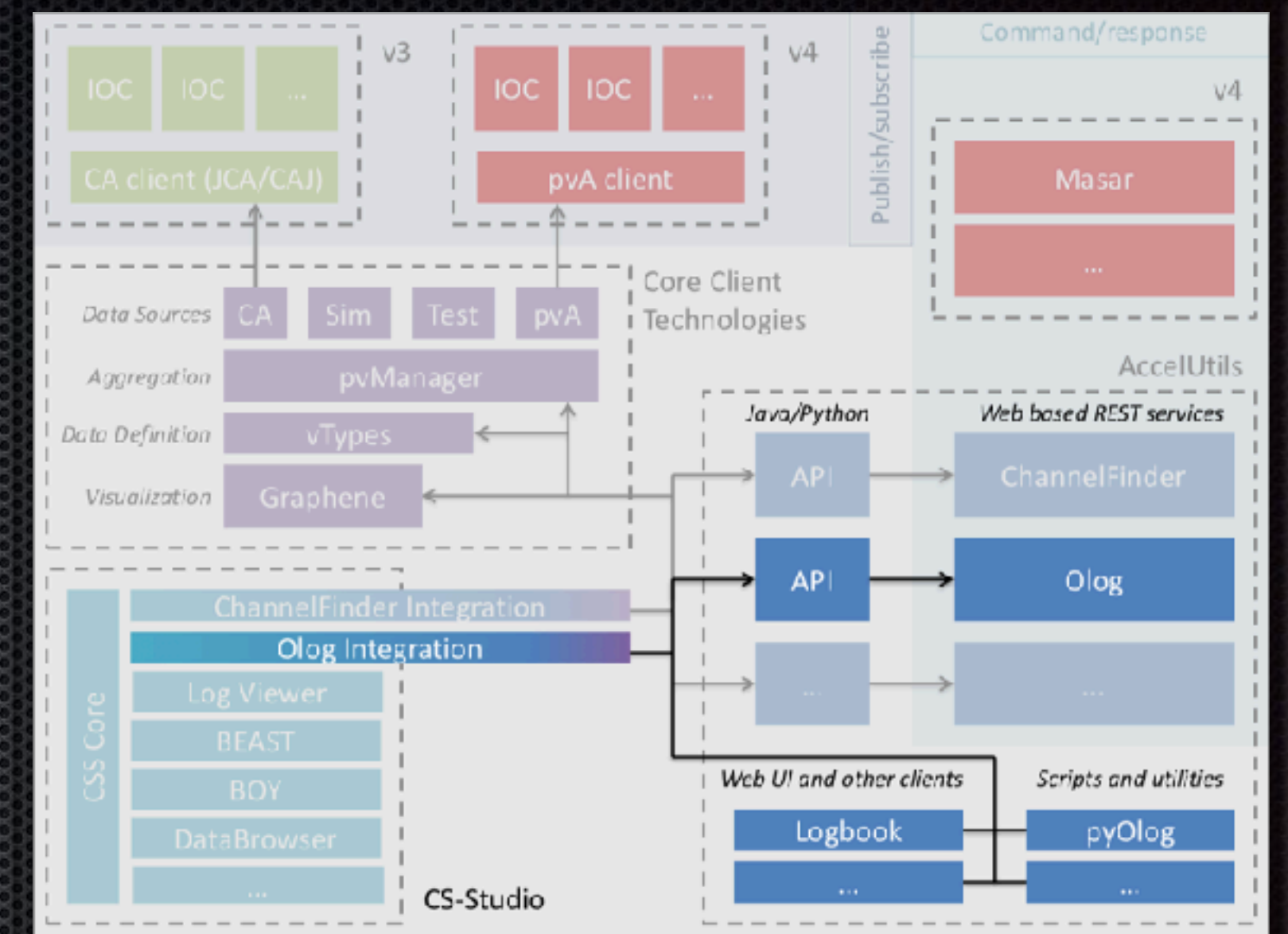
- ✦ Einträge in das Laborbuch müssen automatisiert werden können
- ✦ Benötigt Import/Export API (unlimited users, dokumentiert)
- ✦ Muss administrierbar, skalierbar und austauschbar sein
- ✦ Am FHI genutzte elektronische Laborbücher: olog, elog, (labfolder)



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The screenshot shows the Olog web interface. The left sidebar contains navigation menus for 'Filter Log Entries', 'LOGBOOKS', and 'CREATED FROM'. The main content area displays a log entry for 'mdavidsaver, April 10th 2012, 7:16 pm' with a plot of pressure over time. The plot shows a sharp spike in pressure around 11:12 AM, corresponding to a modulator shutdown. The y-axis is labeled 'Pressure' and ranges from 10⁻¹¹ to 10⁻⁶. The x-axis is labeled 'Time' and ranges from 07:44:04 to 12:44:04. The plot includes three data series: LINAC(P 3RLV)P4 (blue), LINAC(P 3RLV)P4 (red), and LINAC(P 3RLV)P4 (green).

Olog: <https://github.com/Olog>



Olog Clients – CS-Studio

Log Entries initialized
with application specific
information

Alarm server

- PV name
- Alarm status
- Alarm time

The screenshot shows the 'Create Log Entry' form in the Olog interface. It includes fields for 'User Name', 'Password', 'Date' (set to Sep 21, 2013), and 'Level'. Below these are sections for 'Current Alarms', 'Logbooks' (set to Operations), and 'Tags'. There is also a 'Hide details' section and a 'CSS Window' section at the bottom.



*Wavenumber.plt LLRF_settin... All_C3MCC.opi IR_Powermet... BeamLineAcc... >> 5

Extern Access to FEL

- No external access
- Beamline 1 (Fielicke)
- Beamline 2 (vHelden)
- Beamline 3 (Asmis)
- Beamline 4 (Paarmann)
- Beamline 5 (Kuhlenbeck)

elogbook.fhi-berlin.mpg.de

Installation | Operating

The FHI free electron laser (FEL) project (Operating), Page 1 of 20 Logged in as "Heinz Junkes"

New | Find | Select | Import | Config | Logout | Last day | Help

Full | Summary | Threaded | Collapse | Expand -- All entries -- -- Category -- 388 Entries

Goto page 1, 2, 3 ... 18, 19, 20 Next All

IRMPD spectroscopy of thymine cluster cations, entered by Jongcheol Seo on Mon Apr 16 18:06:19 2018
HeDrop DNA Dinucleotides 36 MeV, entered by Daniel Thomas on Tue Apr 17 15:58:20 2018
IRMPD spectroscopy of protonated amino acid clusters, entered by Jongcheol Seo on Tue Mar 20 10:29:43 2018
Leuven collaboration AlNbH2 cations, entered by Andre Fielicke on Tue Mar 13 23:31:42 2018
Leuven collaboration AlRhH2 cations, entered by Andre Fielicke on Fri Mar 9 20:17:01 2018
Leuven collaboration AlRhH2 cations, entered by Andre Fielicke on Fri Mar 9 18:10:11 2018
HeDrop Glycans/FCO2 1120-2800 cm-1, entered by Daniel Thomas on Tue Apr 17 16:08:48 2018
HeDrop DNA Dinucleotides 36 MeV, entered by Daniel Thomas on Wed Feb 21 10:10:08 2018
HeDrop Glycans Maike/Daniel, entered by Daniel Thomas on Wed Feb 21 10:06:35 2018
IRMPD spectra of polyoxomolybdates, entered by Jongcheol Seo on Wed Feb 7 18:42:04 2018
IRMPD spectra of sodiated proline metaclusters, entered by Rayoon Chang on Fri Dec 15 18:03:57 2017
36 MeV FCO2- and FCO2-+H2O HeDrop Cold Trap, entered by Daniel Thomas on Fri Dec 15 10:32:01 2017
IRMPD spectroscopy of the protonated amino acid clusters, entered by Jongcheol Seo on Tue Dec 5 21:03:52 2017
Iron Oxide clusters + water, entered by Wieland SchÄllkopf on Fri Nov 24 12:51:47 2017
IRMPD spectra of fluorinated pyridine chloride complexes (negative ion mode, iMob), entered by Waldemar Hoffmann on Thu Nov 16 19:26:18 2017
IRMPD on alkali bound Pro clusters iMob, entered by Waldemar Hoffmann on Tue Nov 14 09:48:58 2017
UK Mackenzie shift 37 MeV, cluster reactivity, entered by Andre Fielicke on Thu Nov 9 23:05:53 2017
UK Mackenzie shift 37 MeV, cluster reactivity, entered by Andre Fielicke on Thu Nov 9 23:12:03 2017
UK Mackenzie shift 37 MeV, cluster reactivity, entered by Andre Fielicke on Thu Nov 9 23:13:21 2017
UK Mackenzie shift 37 MeV, cluster reactivity, entered by Andre Fielicke on Thu Nov 9 23:15:01 2017

Goto page 1, 2, 3 ... 18, 19, 20 Next All

ELOG V2.9.2-2455

shift - log - entry
wird automatisch erstellt



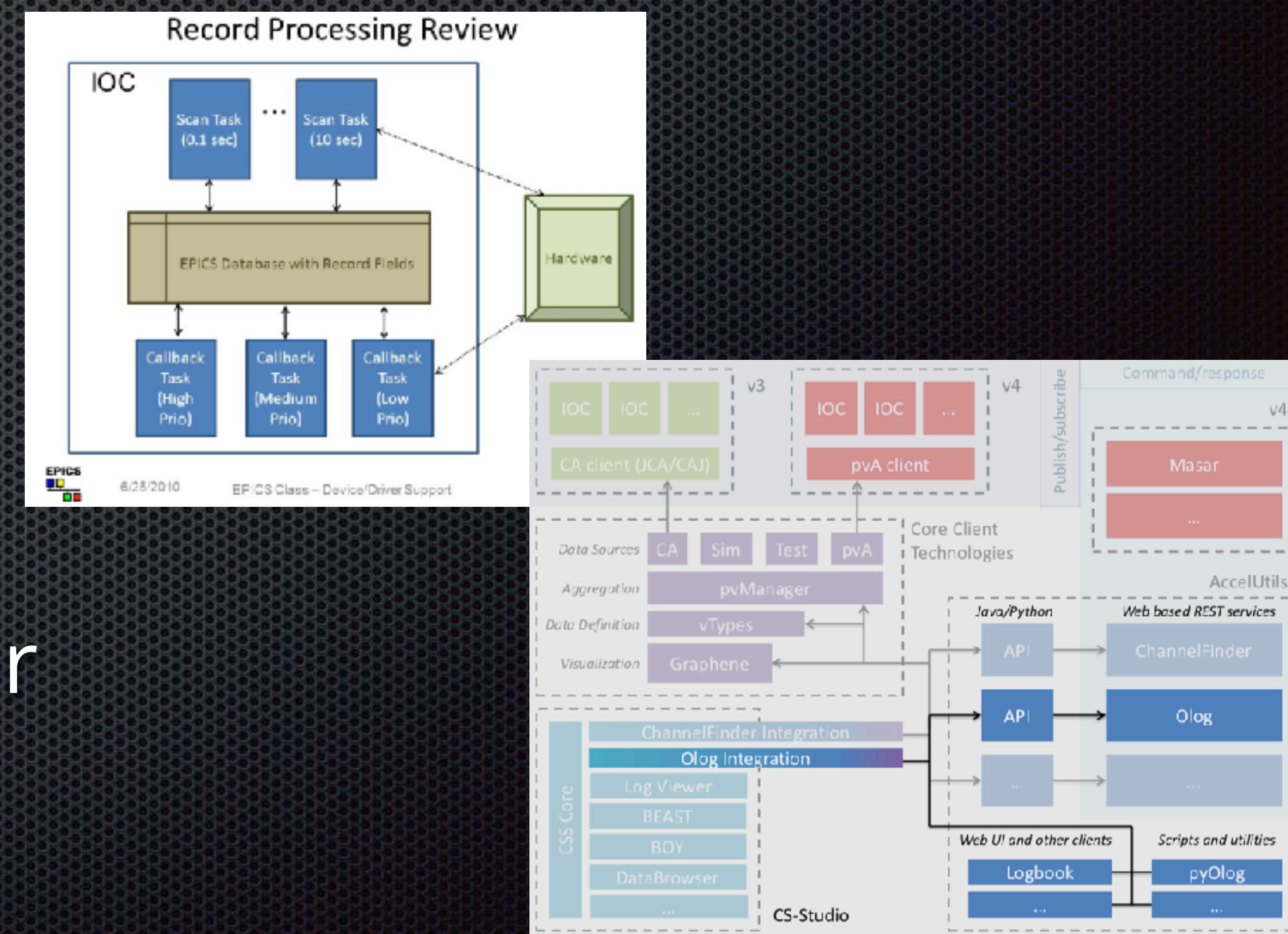
Aus MPDL Forschungsbericht 2017 "Elektronische Laborbücher in der Max-Planck-Gesellschaft" :

"Individuelle Flexibilität ist für die meisten Forschenden essenziell: Da sich die Experimentalanordnungen gerade im Forschungskontext oft ändern sind Systeme, welche auf einen hohen Automatisierungsgrad der Arbeitsabläufe setzen, eher ungeeignet."

(https://www.mpg.de/10988930/_jb_2017)

❖ Widerspruch!

- ❖ Durch die Integration der elektronischen Laborbücher in die Datenaufnahme "folgen" die Einträge den Änderungen der Experimentalanordnung





Labfolder

- ✦ Wurde von MPDL zentral beschafft
- ✦ Wegen Erscheinungsbild bei den Usern gerne gesehen
- ✦ Aussen hui, innen pfui? Keine Export/Import Funktionalität
- ✦ Nicht administrierbar, nicht skalierbar, nicht austauschbar
- ✦ Wie kommen wir da wieder raus? *Plan B* vorhanden?