Elog status

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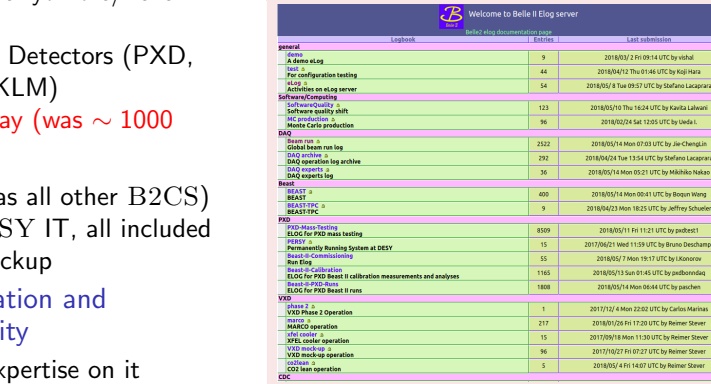
Belle 2 Software workshop - Collaborative Services,
DESY, 14 May 2018

Status of eLog at DESY

eLog server is available at DESY $\mathcal{O}(2)$ years, as part of B2 collaborative services

- $N > 30$ elogbooks (was $\mathcal{O}(10)$ at last B2GM)
  - some are obsolete/not user anyomore/never really used
  - Comp/Soft, DAQ, BEAST, Detectors (PXD, VXD, SVD, ECL, ARICH, KLM)
  - $\mathcal{O}(20\,000)$ entries as of today (was ~ 1000
- System provided by DESY
  - operated in XEN virt env (as all other B2CS)
  - hypervisor operated by DESY IT, all included
  - plenty of disk space, full backup
- eLog installation, configuration and maintenance our responsibility
  - DESY IT does not have expertise on it
  - documentation on elogbook configuration and maintenance is available

https://elog.belle2.org



Documentation on confluence

Current usage

Group	ElogBook	Num entries	Size
General	demo	9	44K
	test	44	108K
	eLog	54	1.2M
Soft/Comp	SoftwareQuality	123	33M
	MC production	96	6.6M
DAQ	Beam run	2452	21M
	DAQ archive	292	988K
	DAQ experts	35	648K
BEAST	BEAST	386	871M
	BEAST-TPC	9	92M
PXD	PXD-Mass-Testing	8509	22G
	PERSY	15	24K
	Beast-II-Calibration	55	3.2G
	Beast-II-Commissioning	1141	79M
	Beast-II-PXD-Runs	1741	36M
VXD	phase 2	1	12K
	marco	217	42M
	xfel cooler	15	800K
	VXD mock-up	96	37M
	co2lean	5	2.8M
CDC	CDC operation	4	16K
SVD	SVD Operation	286	320M
	SVD Commissioning	1	12K
	SVD Ladder Mount	134	866M
ECL	ECL operation	101	5.0M
ARICH	ARICH	85	76K
KLM	KLM	2	16K

- Beam run (previously Cosmic Ray Test) is the main elogbook for data taking;
- PXD-Mass-Testing is filled with automatic scripts (and a log of attach);
- some elogbooks requested, initially used but then not very much;
- some are set to read-only for archive;
- group hierarchical organization could be improved.

Status: before and after start of data taking

Before start of beams

- service up and running, gained experience mostly in configuration
- some problem with IT infrastructure last summer (network related problem)
  - identified, fixed (with some delay $\sim$ days)
  - took actions to monitor and ensure better response time
- other issue was that used kept on de-activating themself, mostly due to a problem in user config interface
  - need an admin (such as myself) to reactivate them, possible from web interface;
  - improvement in user interface setup and sent to ELOG developers.

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service was used by different groups but was not a very critical one, nor massively used

- life was easy

Status: before and after start of data taking

almost suddenly very serious problems came up as soon as the usage of ELOG increased

- **Usability**
  - ELOG was suddenly reported to be very slow, almost unusable from KEK and from elsewhere
  - problem in logging in, in reading and in submitting new logs
  - session freezing with loss of partially written logs
- **Instability**
  - we observed frequent crashes of unknown origin of the ELOG daemon

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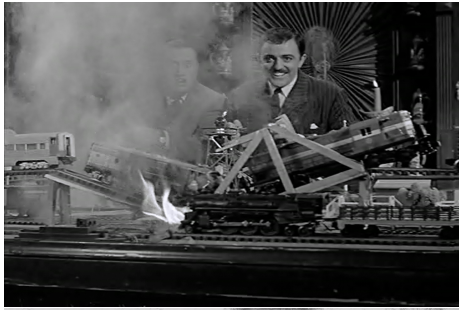


What we did: usability

Intense work on two front: software and infrastructure

✓ latter part was almost entirely done by DESY IT

- many thanks Andreas!
- remove load balancer in front of ELOG server, use of a fast ssd disk in place of the previous NFS based
  - following suggestions found on ELOG forum
  - faster disk basically solved the issue of speed
- removed the mail notification to (many) individual mails address in favour to a single mail to a mailing list managed by sympa, to reduce the load on the server
  - also suggested by ELOG community;
  - many ML created and associated to elogbooks, and subscribes added *ex-officio*;
  - documentation added for mail subscriptions;
  - no complaints so far, I assume that it works fine

✗ instability was not solved by this

What we did: instability

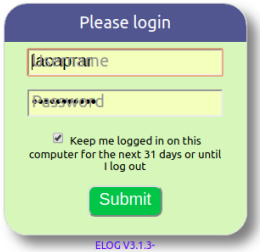
- Andreas setup an heartbeat script to keep under strict control the ELOG daemon and restart if automatically needed
  - At least this made the ELOG usable again w/o human intervention
- We increased the logging as much as possible, and try to find a pattern in the crashes
  - we might have found a correlation with a automatic usage of ELOG by PXD community, via a script, but not able to reproduce or be sure.
- got in contact with elog maintainers at Hawaii (TOP-elog) and XFEL at DESY
  - ✗ got valuable information about configuration (XFEL is very similar to ours) but no real solution
- ✓ get from ELOG developers the latest greatest version of the code 3.1.3, compile and test it.
  - version changes reported fixes to some crashes, not clearly similar to ours, but anyway.
  - we did careful test on ELOG test instance to check that the upgrade was not causing problem to the existing logbooks
  - took the chance to include the fix of user interface to avoid user auto de-activation by mistake
- ✓ switched the version to 3.1.3 and things improved a lot
  - not a single crash since > 3 weeks
  - I would be more happy if I knew why, no real change in usage pattern AFAICS
  - We keep monitoring the situation, but it seems that the instability is gone

Other improvements

- During the debugging and monitoring, we managed to improve some of the feature of ELOG
- configuration change w/o need to restart the deamon
  - Most of the configuration change can be done via web interface by admins, w/o the need to restart
  - Also creation or rename of elobooks can be done in the same way
  - creation can use an existing elogbook as a template, very handy
- better documentation for user ;
- and for administration; Expert documentation
  - how to setup a new elogbooks,
  - how to implement non obvious features
    - eg webserver/ldap authentication
    - automatic JST timezone
    - mail notification via sympa mailing list
    - etc

Other improvements: LDAP logout/login

- LDAP login/logout
  - LDAP (desy username/password) is used by SSL to enter the elog webpage
  - the provided username is automatically used as `author` for elog entries
  - There is no easy way to logout and re-enter as a different user, w/o exiting from browser
    - ★ a typical use case for people on shift from control room with a shared computer
  - with new version LDAP auth is not enabled also for ELOG
    - ★ using always the same desy username/password
    - ★ possible to logout and login as different user
    - ★ implemented in two SVD elogbooks after some test
    - ★ caveat: the logout change the ELOG user, not the SSL one, so it is not a full logout!
    - ★ downside: (the same) username/password are required twice



eLog at DESY and KEK with synchronization

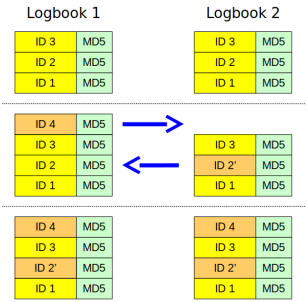
- **Synchronization** (also bi-directional) between two eLog instances is possible. Built-in in the eLog server software
- Always a possibility if the DESY based eLog turned out to be not really usable from KEK
  - I really though that we would be forced to go that way a given point
  - debugging and other test prevented me to fully follow this path

✓ DESY to DESY partially done

✓ DESY to Padova partially done

✗ DESY to KEK not done yet

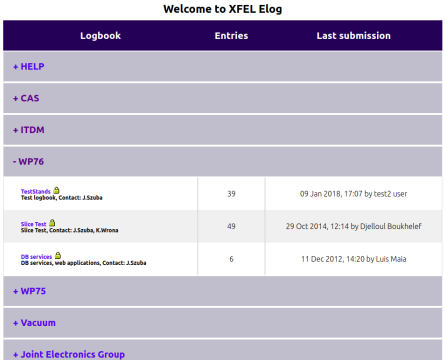
  - in both cases the apache SSL authentication is passed via an ssh tunnel to eLog server
  - fully sync for non protected elogbooks, not yet for protected ones (the majority)



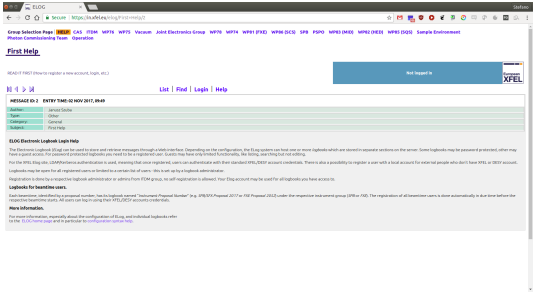
eLog web interface

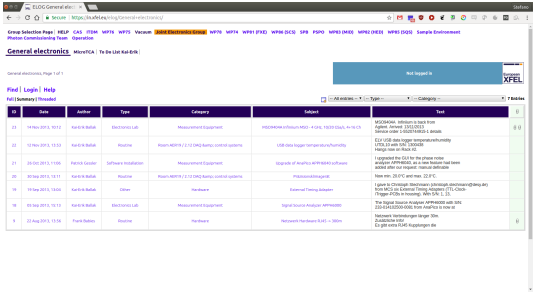
so far we are basically using the standard eLog web interface

- interface is widely configurable via css
- also at single logbook level
- XFEL has developed a nice customization with a very nice and modern design
- clearly a lower priority work wrt usability and stability, but might be a nice project for a young IT student, maybe?
- personally I do have some css experience, but not much, and very little design capability (and time to play with it)
- if you have a student or someone interested, let me know.



XFEL web interface





Summary

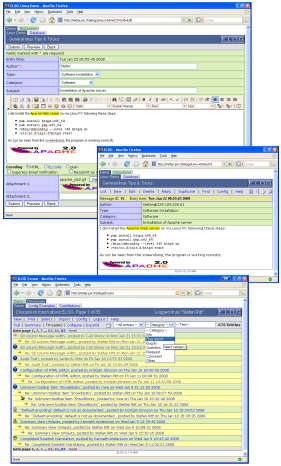
- **A working ELOG is available at DESY and widely used**
- **Hard times and hard work for ELOG in the past months**
  - Major issues with stability and usability
  - Having professionals IT team behind ELOG service really paid off
  - thanks to their hard work, the ELOG was usable and used in spite of all the problems
  - Issues seems to be solved now, thanks to better hardware/infrastructure and updated software
- still a bit uncomfortable for long term stability and scalability
- Documentation, also admin side, has improved
- other minor/medium improvement put in place
- **synchronization test begun, but have not really progressed yet**

Additional stuff

Additional or backup slides

Current most popular option: eLog

- http://midas.psi.ch/elog/ author: Stefan Ritt
- First release 2001: latest release (3.2.1) 5/9/2016 (GNU public license)
- initial choice of LHC experiments (with [heavy] customization)
  - C, javascript, css
  - web interface
  - own web server (can work with apache)
  - very configurable
  - flat file "database"
  - form (shift check-list), categories, sub-cat
  - mail notification, with filter, attach, etc
  - access control: native, kerberos, LDAP, guest
  - two way synchronization (keep two or more logbooks in sync)



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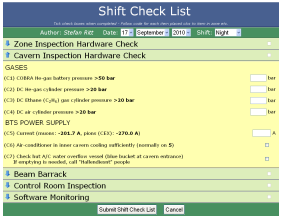

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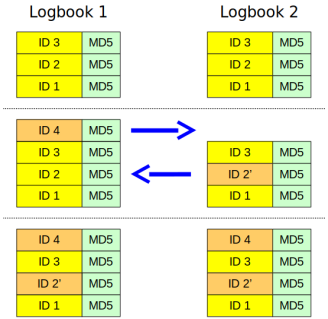

Bibliography I