

DAQ operation status: Part 2

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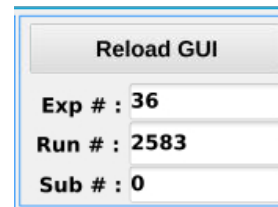
KEK, IPNS

on behalf of the Belle II DAQ group



Run control updates

- During the shutdown period, we also had several updates other than auto-restart DAQ.
- Solve “stuck in loading” especially with partial-SALS.
- Sub-run number in GUI + CR manual
- Separate PXD and EB2+ROI from GUI + CR manual
 - No more confusion from CR shifter
 - Inclusion/exclusion is automatically done following PXD



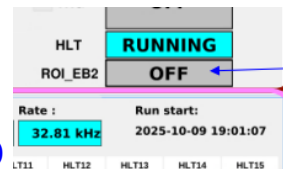
Reload GUI

Exp # : 36

Run # : 2583

Sub # : 0

Regarding the subrun number, you can refer to the section “**Auto-restart with a new subrun for TTD-detectable errors**” on page.53 in this manual.



HLT RUNNING

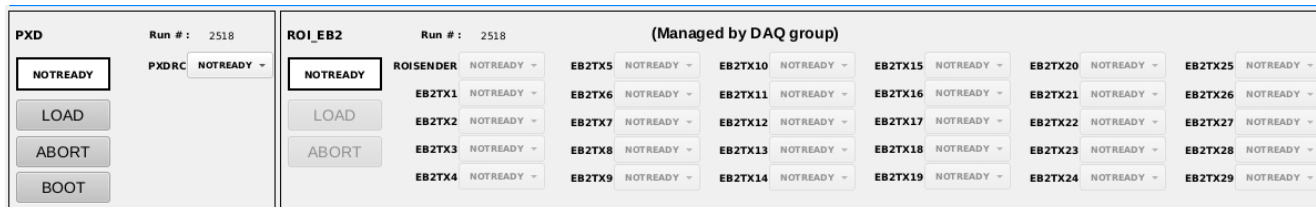
ROI_EB2 OFF

Rate : 32.81 kHz

Run start: 2025-10-09 19:01:07

LT11 HLT12 HLT13 HLT14 HLT15

EB2: Automatically included/excluded by including/excluding PXD



PXD Run # : 2518

NOTREADY PXDRC NOTREADY

LOAD

ABORT

BOOT

ROI_EB2 Run # : 2518 (Managed by DAQ group)

NOTREADY

LOAD

ABORT

ROISENDER	EB2TX5	EB2TX10	EB2TX15	EB2TX20	EB2TX25
EB2TX1	EB2TX6	EB2TX11	EB2TX16	EB2TX21	EB2TX26
EB2TX2	EB2TX7	EB2TX12	EB2TX17	EB2TX22	EB2TX27
EB2TX3	EB2TX8	EB2TX13	EB2TX18	EB2TX23	EB2TX28
EB2TX4	EB2TX9	EB2TX14	EB2TX19	EB2TX24	EB2TX29

- Local run update: GUI-configurable HLT + no output storage



RC_HLT_RECL NOTREADY

passthrough

- beamreco_filter
- beamreco_monitor
- cosmic
- passthrough

RC_STORE_LOCAL NOTREADY

DataStagerRoot.py

Store output files

No output (null)

Rate : 000000

Flow : 000000

HLT-related updates (hardware)

- For more detail of HLT status, please check Itoh-san's presentation
- Replaced two air conditioners (no water-cooled)
- (semi-automized) HLT installation script is prepared.
 - [UEFI support](#), building PXE booting image, PXE root directory, network config, ...
- HLT02 renovation: 12 old workers → [5 new workers](#)
 - The old workers are reserved as backup purpose → one server is using for b2arch2
- STORE01 renovation: installation, KEKCC file transfer test was done.
 - Old STORE01 is re-usable, probably, install under ERECO, or replace qastor01.
- HLT15+STORE15: installation is done, included in global.

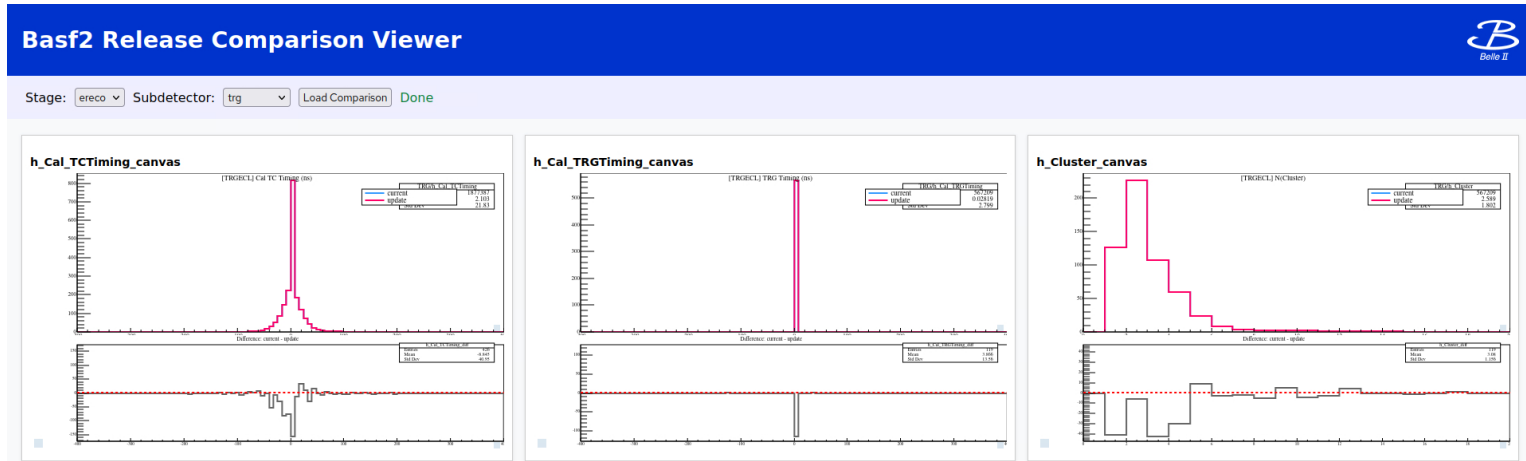
HLT		Run # : 2583																															
RUNNING STOP ABORT BOOT	✓	RC_HLT01	RUNNING	-	RC_STORE01	RUNNING	-	✗	✓	RC_HLT06	RUNNING	-	RC_STORE06	RUNNING	-	✗	✓	RC_HLT11	RUNNING	-	RC_STORE11	RUNNING	-	✗	✓	RC_ERE001	RUNNING	-	✓	DQMHLT	RUNNING	-	✓
	✓	RC_HLT02	RUNNING	-	RC_STORE02	RUNNING	-	✗	✓	RC_HLT07	RUNNING	-	RC_STORE07	RUNNING	-	✗	✓	RC_HLT12	RUNNING	-	RC_STORE12	RUNNING	-	✗	✓	RC_ERE002	RUNNING	-	✓	DQMERE0	RUNNING	-	✓
	✓	RC_HLT03	RUNNING	-	RC_STORE03	RUNNING	-	✗	✓	RC_HLT08	RUNNING	-	RC_STORE08	RUNNING	-	✗	✓	RC_HLT13	RUNNING	-	RC_STORE13	RUNNING	-	✗	✓	RC_ERE0PHY	RUNNING	-	✓	DQMPHYSICS	RUNNING	-	✓
	✓	RC_HLT04	RUNNING	-	RC_STORE04	RUNNING	-	✗	✓	RC_HLT09	RUNNING	-	RC_STORE09	RUNNING	-	✗	✓	RC_HLT14	RUNNING	-	RC_STORE14	RUNNING	-	✗									
	✓	RC_HLT05	RUNNING	-	RC_STORE05	RUNNING	-	✗	✓	RC_HLT10	RUNNING	-	RC_STORE10	RUNNING	-	✗	✓	RC_HLT15	RUNNING	-	RC_STORE15	RUNNING	-	✗									

HLT-related updates (software)

- BASF2 release-09 is running (almost) successfully on HLT and ERECO.
 - **DQM without SHM** (Bjoern) → **prevent key collision** which happened time to time.
 - **Data corruption check** from **eb1rx** and **HLTZMQ2Ds** module
 - Get the **HLT unit number from hostname command** → no missing HLT unit in DQM
 - **Integrate zmqbasf2 script into the official BASF2 hlt/softwarescript**
 - To support three distribution modes (ringbuffer, zmq, zmqbasf2), introduce new constant “EventDistributionMode” and **cleaning up script paths**.
 - Merged, but not yet published patches
 - HLT prefilter in monitor mode → Check Rahul’s presentation
 - Add suffix option for V0 / hyperon reconstruction (Vidya) → **Prevent DataStore object collision**
- Issue in release-09
 - **UDP logging is not working**, probably due to gcc update.
 - For temporary solution, **re-enable text file-based logging** for HLT and ERECO.
 - Prepare dedicated HDD at least to reduce disk I/O. For now, no problem is found.
 - While Soft. experts are studying, this cannot be fixed before starting physics runs.

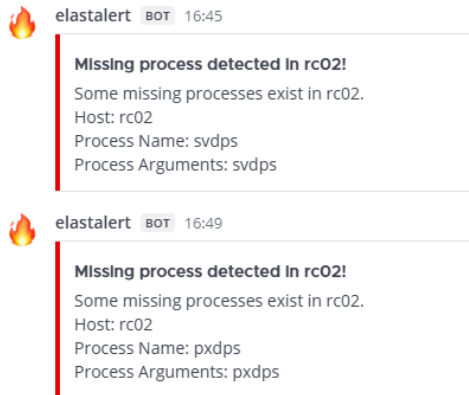
DQM/HLT test bench updates

- DQM can be restarted via [restart.sh](#) (trigger systemd script)
 - DESY sync feature need a manual credential input for login.
 - DAQ shifts are added into the whitelist. (Very easy) manual will be prepared soon.
- Switching to backup DQM server can be done via [restart.sh](#)
- Alpha version [DQM comparison web UI](#) for current and future [BASF2 release and online GT](#) (Hyuna/Chanyoung)
 - More polishing is necessary. Gitlab issue will be created to call relevant experts.



Alarm / process monitoring preparation

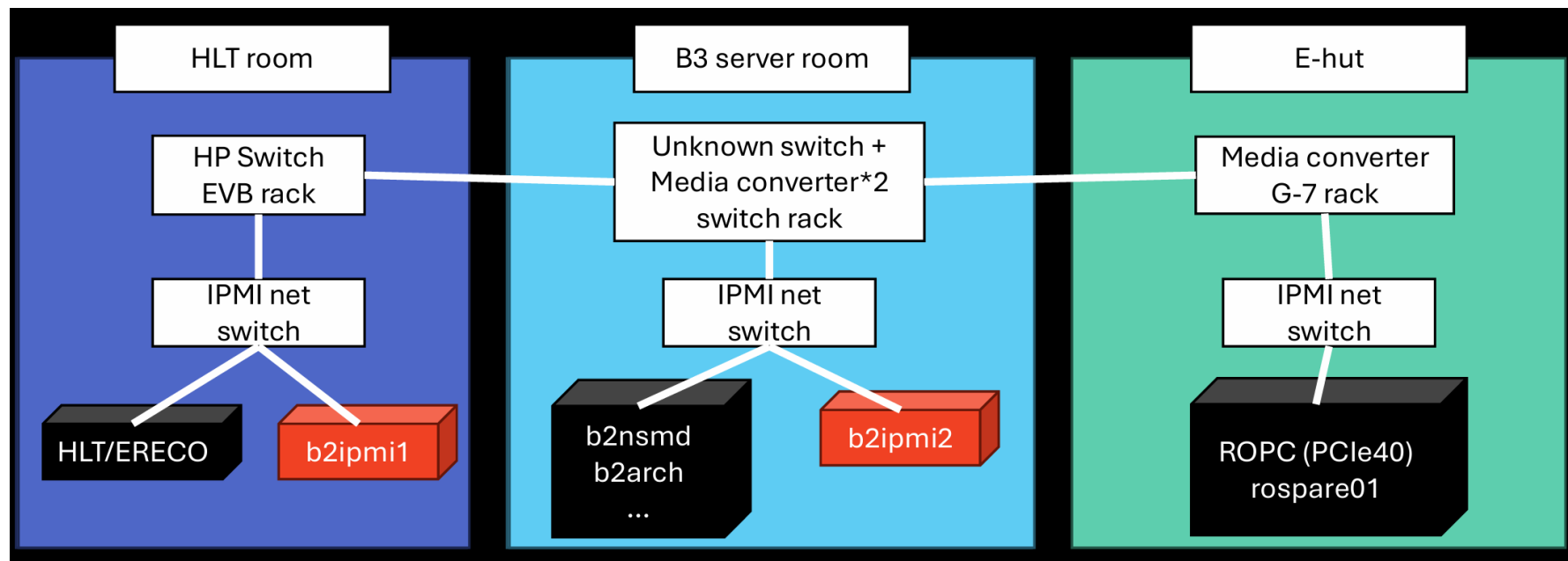
- Three alarm-server's VM hosts are ready.
- Alarm server restart can be easily done via [restart.sh](#)
- [Process monitoring](#) is prepared with some homework
 - Hosts and process lists are managed by JSON format
 - [Mattermost messages](#) are sent in dedicated channel
 - [Password-less restart.sh “start|status”](#) for b2shift account (no stop/kill)
- We can merge into the global operation once GUI is ready.



```
[b2shift@shiftc ~]$ ./process_recover.sh status rc01
[rc01] Starting SSH command...
rc01: ssh check to all targets: [ OK ]
rc01->rc01: daq_slc apps [ OK ]
rc01->rc01: daq_slc daemonised [ OK ]
rc01: rc01 done: [ OK ]
rc01: restart.sh status local: [ OK ]
Connection to rc01 closed.
All SSH commands completed.
```

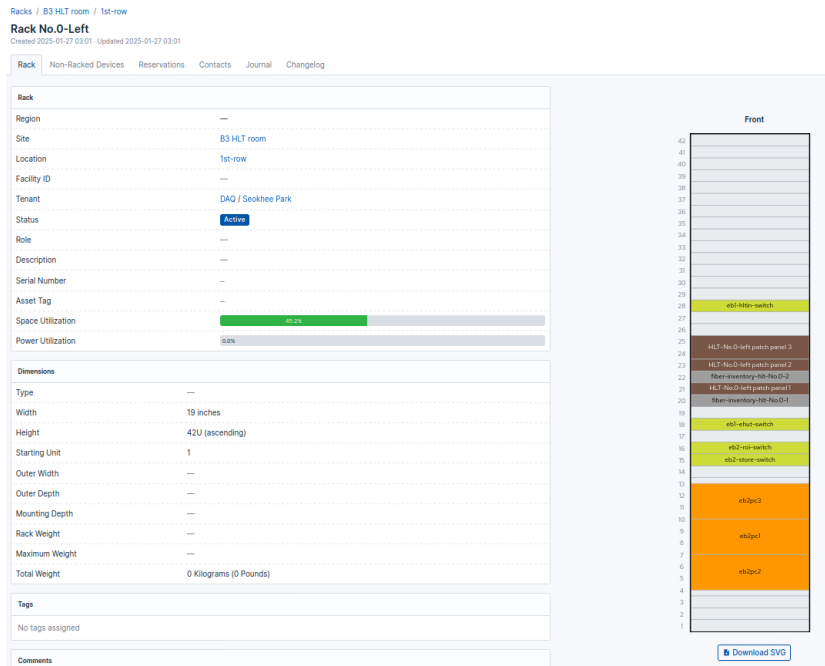
IPMI

- E-hut, B3, and HLT room are connected to the single IMPI network
- b2ipmi1 (HLT room) can control all the servers including readout PC
- b2ipmi2 (B3 server room) is ready for backup purpose



Operation tools

- General purpose server: b2srv1/2
 - Web server
 - Local DNF repo mirrors
 - Netbox (network devices database)
- b2arch2 → **main DAQ archiver**
 - Former b2arch2 was broken
 - Take one of HLT02 worker node
 - Common hostname “b2arch”
 - Latest EPICS Archiver Appliance
 - 112G RAM, stable operation up to now



Summary

Run control

- Introduce sub-run number
- Separate EB2 and ROI from PXD
- Update local run HLT/STORE control

DQM

- restart.sh works
- Manual login needed for DESY sync

HLT test bench

- Alpha version of release/online GT comparison web UI is ready.

Operation tools

- General purpose servers b2srv1/2
- Main DAQ archiver upgrade with more RAM

HLT

- STORE01 has been updated
- New HLT worker servers for HLT02
- HLT15/STORE15
- BASF2 release-09 with many features; while missing UDP logging

IPMI

- B3, HLT room, and E-hut are controlled via single IPMI server and network.

**READY for next
physics RUN!**