HLT Testbench

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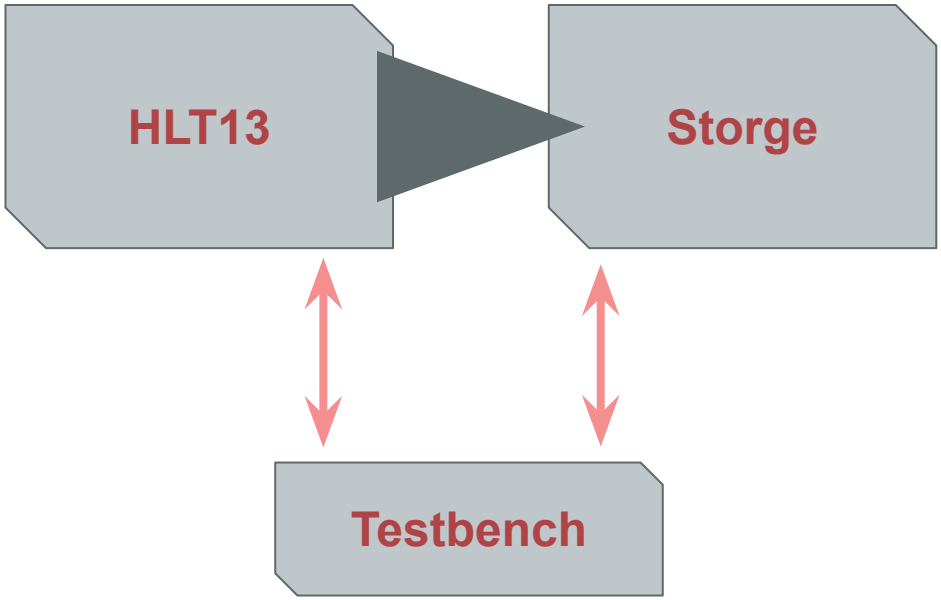
Contents

Confirming Data Flow for BASF2 update

The most basic task in High-level Trigger testbench.

Temporarily stopped since there is no physics run.

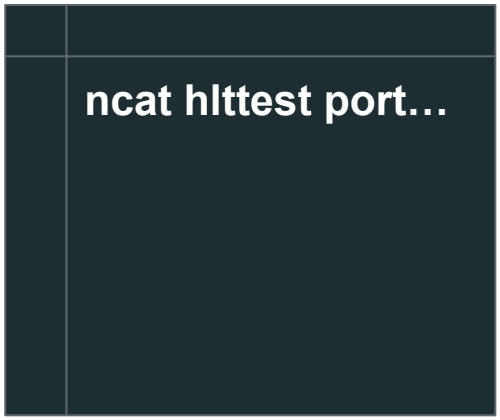


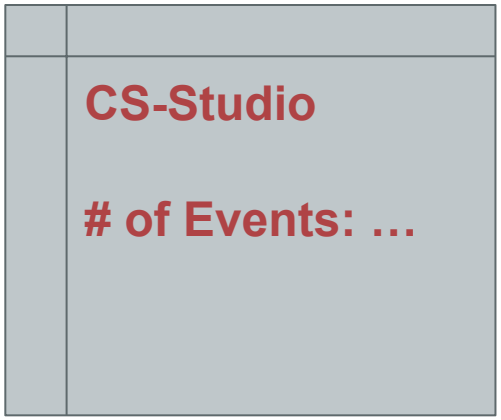
Control Panel for Confirming Data

For now, I have to type command in terminal to make a data flow and monitor it through CS-Studio.

The new control panel will unify these task in a single UI.

If possible, I will fix the run type to the null run.





Control Panel for Confirming Data

On current stage, trying to add following features to CS-Studio modifying daq_rc_gui branch.

- Run nsm2d to construct networks towards HLT13 and storage.
- Monitor their network status
- Select the data file and make a data flow.
- Fix the run type as null run.

Control Panel for Confirming Data

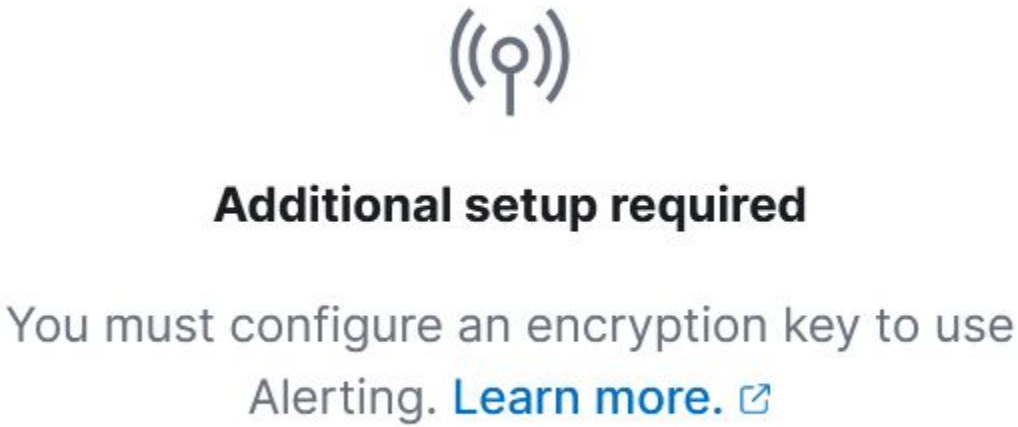
Problems

- Since HLT13 is isolated from the other HLTs, we cannot process complete SALS.
- How to monitor simultaneous network status to HLT and storage.

Email Alerting

Feature to send a message to maintainer if there is any situation to be deal with.

In Kibana we have the alerts rule and I tried to use it but..



Email Alerting

Found the solution for this problem, which is to generate an encryption key in Kibana configure file, kibana.yml.

Log Analysis

The long-term goal is to replace elog.

We already have clear and fancy alert system in the rocket chat, but it is chatting app, which is lack of ability to deal with messages passed.

Using Kibana's invert-indexing, we can show more useful summary of error messages.

Log Analysis

E.g., create dashboard that shows which kind of error is the most common, which unit frequently crashes, a variable seems to be related to the error, etc.

Top values of unit.	Top values of level	@timestamp pe	Count of records
hlt07	ERROR	17:50	725
hlt09	ERROR	17:50	693
hlt05	ERROR	17:50	714
hlt03	ERROR	17:50	724
hlt08	ERROR	17:50	704
hlt06	ERROR	17:50	657
hlt01	ERROR	17:50	674
hlt02	ERROR	17:50	730
hlt10	ERROR	17:50	703
hlt07	ERROR	17:40	1,542
hlt09	ERROR	17:40	1,514

Data Review

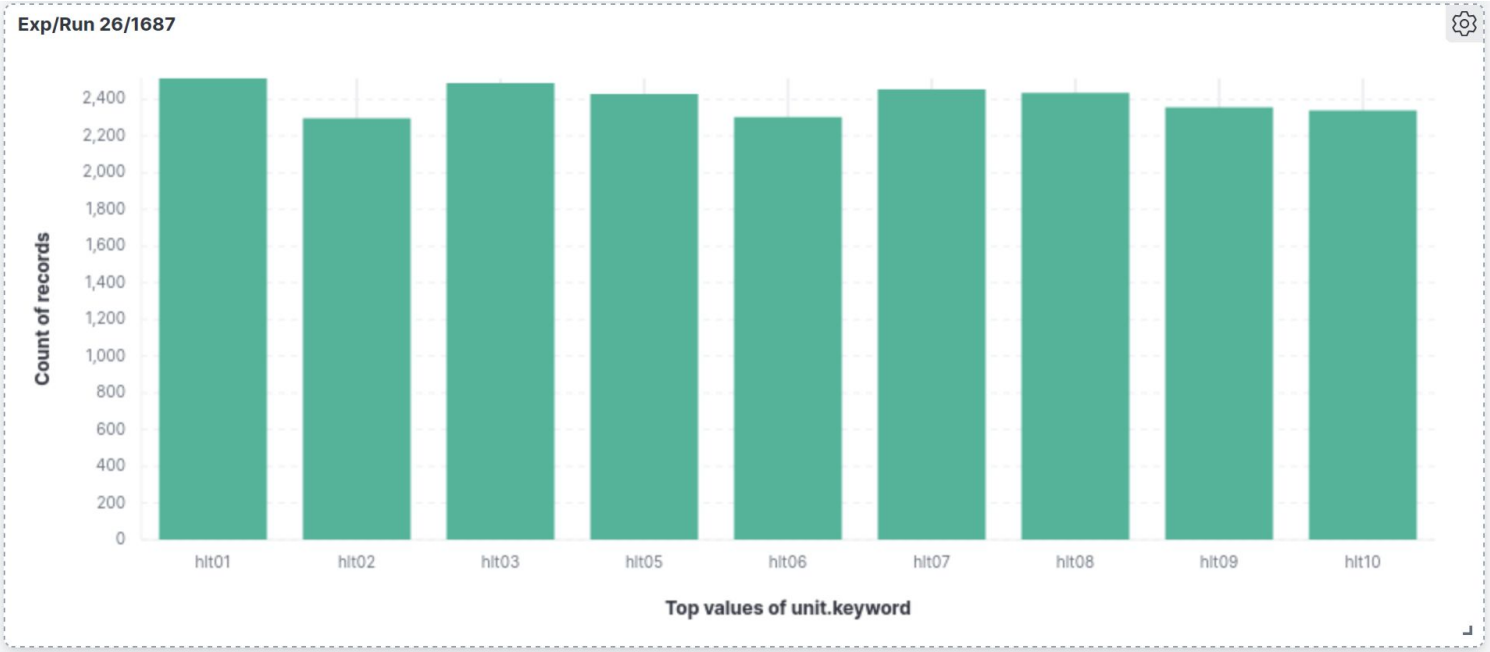
Assume we are very curious whether the event distributor of HLT is working properly or not.

Search the run time of a physics run in RunDB of Belle II.

	Exp	Run	Run Type	Start Time	Run Time	Stop Reason	Detectors	Momentum in GeV	Solenoid in T	Triggers	Events	Luminosity Delivered	Luminosity Recorded
Details	26	1687	physics	2022-06-16 06:11	3:07:54	STOPPING	PXD | SVD | CDC | TOP | ARI | ECL | KLM | TRG	HER: 7.01 LER: 4.00	1.52	In: 4390.22 Hz Out: 49035235	49005399	278780.42	265322.43

Data Review

Confirm the number of records of each HLT unit in Kibana.



Data Review

Preceding example does not have useful information, but you may get the key idea.

Though the data review feature is still in conceptual stage, I expect to confirm some hypothesis or to suggest some fix.

I am searching for any relation between variables in Kibana, but many of them are empty regardless of its time range. I guess those variables are mapped, but not stored.

It is not priority until any tendency found.

Summary

- Confirm data flow if basf2 updated	**running**
- Control panel for confirming data	on plan(priority)
- Email alerting	**on development**
- Log Analysis	on plan
- Data review	in future