

Operation and monitoring  
2022/11/24  
T.Koga

# Motivation

-Discuss possible improvement of operation and monitoring during LS1

-Expert shift

-elastic alert

-DQM, QAM

-Operation log

# Expert shift

-Time slot: 4hours × 6 slots/day

-Member: ~10 people

-Quota: #Time slots divided by #Members.

Point is × 2 weighted on holiday and meeting day with slide.

-Work:

- On-call trouble shooting
- Attend meeting and report
- Check DQM/QAM
- Write Elog

-[Manual](#)

-I think we can keep present scheme after LS1.

-If you have any comments/suggestions, please let us know.

# On-call trouble shooting

-Present procedure: If an error occurred and called,

- ① execute recovery command
- ② call sub-trigger expert

-I would like to ask CR shifter ① from the next physics run.  
Sudo-san is making GUI for CR shifter.

**System Parameters:**

GDL L1rate(Hz)	Global Runtype	null	Global Runno	1626	TRG SYSTEM is in	GLOBAL
527.9000;	Global TRGtype	poisson	Global Expno	18	ECL SYSTEM is in	GLOBAL

**TRG Status:** OK Overall TRG readiness (or of all subtrigger readiness)

**Subtrigger readiness** OK=no problem, BAD or UNKNOWN=problem, CSS err=CSS issue(->restart CSS)

Component	Status	Recovery command ①	Core expert ②
SLC	OK	[SLC] 1. b2trg@btrgsrv0:slcctr recover 2. b2trg@btrgsrv0:slcctr reboot	[SLC] T.Koga 0-080-5207-1310
ECLSLC	OK	[ECLSLC, ECL] 1. b2ecltrg@btrgctr0:slcctr recover 2. b2ecltrg@btrgctr0:slcctr reboot 3. b2ecltrg@btrgctr0:slcctr freboot	[ECLSLC, ECL] Y.Unno 0-090-3579-1525 Skype (Eunji Jang) : llive:.cid.e01297ee525c0328
ECL	OK (Detail)		
TOP	OXF (Detail)	[KLM] b2klmtrg@vmeusa: kimini.sh (you can ssh vmeusa from btrgsrv0, then execute b2kmtrg to become b2klmtrg account)	[TOP] S.Vladimir Skype: vladimir-savinov
KLM	OK (Detail)		[KLM] S.Vasily Skype: vasily.shebalin K.Yoshihara 0-080-3003-3516
GRL/CDC	OK (Detail)	[GRL/CDC] If Rocket chat message suggest to reprogram FE, please ask CR to do so. If not, or it is not fixed, mask FE by b2trg@btrgsrv0:~/Softwares/dataflow_script/cdctr.sh recover	[GRL/CDC] T.Koga 0-080-5207-1310
GDL	OK (Detail)	[GDL] b2trg@btrgsrv0: reboot_tesths_gdl.sh	[GDL] H.Nakazawa 0-090-4223-0134 T.Koga 0-080-5207-1310
TRGDAQ	DAQ error (busy, tlost, copper problem etc.) is not shown on this panel but on RocketChat.	[TRGDAQ] No recovery command. Try SALS and Call core expert	[TRGDAQ] H.Nakazawa 0-090-4223-0134 T.Koga 0-080-5207-1310
BG duration monitor on BCG	OK	[BG duration monitor on BCG] b2trg@btrgsrv0:slcctr recover (you can execute even during run)	[BG duration monitor on BCG] T.Koga 0-080-5207-1310

# Automatic error detection and message

-Automatic error detection and message on rochet chat are very useful for quick error recovery and keeping data quality



elastalert @rocket.cat Bot 午後4時14分

CDCTRG dataflow problem at 2022-06-22 16:13 JST ▾

Original message:

```
CDCTRG dataflow problem.      axial SL0 mgr0-1 U2,  FEID:  14 15.
```

Problematic FEID: 14-15

CR shifter: Please ABORT the run and confirm RC state is NOTREADY,

then, please reprogram the following FEE(s) via the recovery GUI

If reprogramming procedure above cannot cure the problem, call the TRG expert.

TRG expert: if reprogram is done by CR shifter but problem is not solved, mask MGR by

```
b2trg@btrgsrv0:~/Softwares/dataflow_script/cdctrg.sh recover
```

-We should prepare more error detection and message during LS1.  
Could you let me know possible items to be implemented?

# Automatic error detection and message

-List of new error check and message in my mind:

- KLMTRG too high/low hit rate in each sector
- efficiency of all physics bits (for now, ~10bits are monitored)
- rate of all physics bits respect to bhabha
- efficiency of CDCtrack/ECLcluster/KLMsector with  $\mu\mu\gamma$ , with  $\phi/\theta$  mapping
- Arrangement of present messages
- all of GDL/GRL/CDCTRG VME parameters (for now, only important one)
- Latency of subtriggers on GRL

# Detailed trouble shooting manual for core expert

-At the end of 2022b, I started to summarize detailed trouble shooting for core experts:

<https://confluence.desy.de/display/BI/Detailed+command+and+trouble+shooting>

It will be important for long-term operation with less experts.

-Please add more information on the page time to time.

# Operation log

- Operation configuration is logged on confluence and elog at online:
  - [trigger bit](#)
  - [run configuration](#)
  - [Elog](#)
- Data quality and trigger configuration have been summarized by BelleII note (<https://docs.belle2.org/record/3109> etc.) after end of run
- I think we can keep this scheme
  - automation might be possible?
- Let me know any idea of improvements/reduction of work



# Shift requirement for authorship

-Detector etc. service work is required for authorship

-However, there has been no rule for TRG service work qualification

- I and Iwasaki-san permitted it time to time, whenever we are asked
- sometimes I do not know the asked person..

-I would like to make a rule for the authorship as follows

- ①take TRG expert shift around the quota, during you are working with TRG
- ②work on TRG research topic and gave presentations at TRG B2GM parallel session more than one time, or write bellell note, or equivalent work
- ③work on TRG management (Professor etc.) to provide money and human resource

You should satisfy (① and ②) , or ③.

-I think most of you have satisfied the requirement

-Let me know any comments

# DQM/QAM

-I would like to add following plots during LS1:

-TSF B2L (DQM)

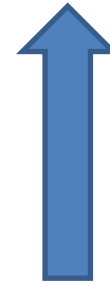
-KLMTRG B2L is possible (DQM)

-efficiency of all physics bits (DQM, QAM. a few bits missed)

-efficiency of CDCtrack/ECLcluster/KLMsector with  $\mu\mu\gamma$ , with  $\phi/\theta$  mapping (DQM, EPICS and QAM)

-QAM will be available on Mirabelle too

-<https://agira.desy.de/browse/BII-8410>



I planned to ask Xuyang, but he left BelleII unfortunately.  
Can someone take over ??

# Summary

-Discuss possible improvement of operation and monitoring during LS1

-Expert shift

-elastic alert

-DQM, QAM

-Operation log

-Let me know your feedback.

backup

# Long downtime 2022ab: CDCTRG with CDCFE SEU

-Several rare (happen once per a few months) CDCTRG dataflow issue with SEU of CDCFE: 218 min

-3 kinds of errors happened in 2022ab. difficult to reproduce the issues.

-2 of them are not completely solved but automatic error detection is implemented and recovered by the recovery script

-1 of them is not solved yet and to be fixed during LS1. under consideration.

-Related ticket:

-<https://agira.desy.de/browse/BIIOPS-277> (40min)

-<https://agira.desy.de/browse/BIIOPS-293> (36min)

-<https://agira.desy.de/browse/BIIOPS-301> (65min)

-<https://agira.desy.de/browse/BIIOPS-309> (47min) ← not solved, task in LS1

-<https://agira.desy.de/browse/BIIOPS-321> (30min) ← not solved, task in LS1

# Long downtime 2022ab: GDL

-GDL->FTSW data transmission issue: 110 min

-have happened since May 10th

-monitor was modified to detect the issue automatically and fixed by SALS

-<https://agira.desy.de/browse/BIIOPS-304> (71min)

-<https://agira.desy.de/browse/BIIOPS-306> (39min)

-Shifter/expert mis operation: 65 min

-miss to execute recovery script

-expert shift manual is modified

-<https://agira.desy.de/browse/BIIOPS-311> (31min)

-reset TOPTRG cause additional error related to GDL and take recovery time

-discussed with TOPTRG expert about a rule for local work

-<https://agira.desy.de/browse/BIIOPS-307> (34min)