

CDB for detector operations

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- Introduction
- DQM matters
- Detector configuration

Introduction

- CDB - "Conditions" DataBase

- ▷ non-event data required for reco/analysis
 - status: good/bad/whatever
 - (mis)alignment

→ additions to "Conditions" requested

- RDB - run database

- ▷ MIDAS writes
 - BOR - begin-of-run record
 - EOR - end-of-run record
 - many things to be added!
- ▷ (online) DQM output

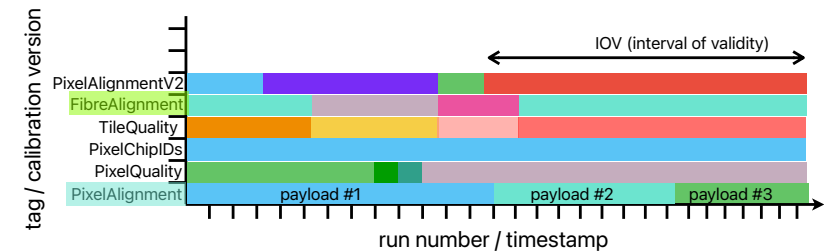
- detector configuration

- ▷ first discussion yesterday

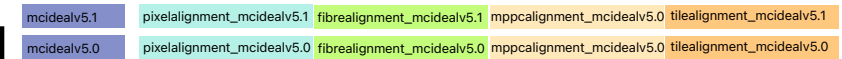
- Within PSI network

- ▷ <http://pc11740.psi.ch/rdb/>
- ▷ <http://pc11740.psi.ch/cdb/findOne/globaltags/mcidealv5.1>

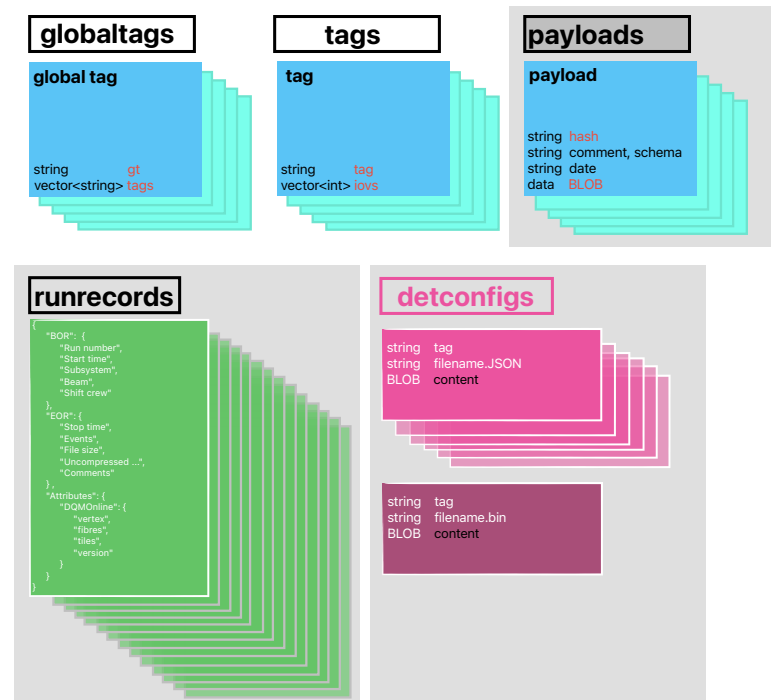
Tags combine conditions/calibrations with intervals of validity



Global tag collects consistent set of tags



Database contents organization



RDB - run database

Mu3e Run Database

localhost:5050/rdb/

Mu3e Run Database

number of runs filter

minimum runnumber maximum runnumber filter

Start time (FIXME!) Stop time (FIXME!) filter

Showing the last 15 runs

Run	Start time	End time	Events	Shift crew	Comments
7565	Fri Jan 19 15:53:11 2024	Fri Jan 19 15:53:09 2024	4403	The data challenge crew	Test data from the data challenge. 61.
7564	Fri Jan 19 15:52:25 2024	Fri Jan 19 15:53:09 2024	2591989	The data challenge crew	Test data from the data challenge. 61.
7563	Fri Jan 19 15:51:39 2024	Fri Jan 19 15:52:23 2024	2585740	The data challenge crew	Test data from the data challenge. 61.
7562	Fri Jan 19 15:50:53 2024	Fri Jan 19 15:51:37 2024	2592230	The data challenge crew	Test data from the data challenge. 61.
7561	Fri Jan 19 15:50:08 2024	Fri Jan 19 15:50:52 2024	2585744	The data challenge crew	Test data from the data challenge. 61.
7560	Fri Jan 19 15:49:23 2024	Fri Jan 19 15:50:07 2024	2590182	The data challenge crew	Test data from the data challenge. 61.
7559	Fri Jan 19 15:48:37 2024	Fri Jan 19 15:49:21 2024	2588534	The data challenge crew	Test data from the data challenge. 61.
7558	Fri Jan 19 15:47:52 2024	Fri Jan 19 15:48:36 2024	2590735	The data challenge crew	Test data from the data challenge. 61.
7557	Fri Jan 19 15:47:06 2024	Fri Jan 19 15:47:50 2024	2594697	The data challenge crew	Test data from the data challenge. 61.
7556	Fri Jan 19 15:46:21 2024	Fri Jan 19 15:47:05 2024	2591499	The data challenge crew	Test data from the data challenge. 61.
7555	Fri Jan 19 15:45:36 2024	Fri Jan 19 15:46:20 2024	2592798	The data challenge crew	Test data from the data challenge. 61.
7554	Fri Jan 19 15:44:50 2024	Fri Jan 19 15:45:34 2024	2594487	The data challenge crew	Test data from the data challenge. 61.
7553	Fri Jan 19 15:44:05 2024	Fri Jan 19 15:44:49 2024	2587954	The data challenge crew	Test data from the data challenge. 61.
7552	Fri Jan 19 15:43:19 2024	Fri Jan 19 15:44:03 2024	2592565	The data challenge crew	Test data from the data challenge. 61.
7551	Fri Jan 19 15:42:34 2024	Fri Jan 19 15:43:18 2024	2588225	The data challenge crew	Test data from the data challenge. 61.

localhost:5050/rdb/

Mu3e RDB 7561

localhost:5050/rdb/7561?runs=7565,7564,7563,7562,7561,7560,7559,7558,7557,7556,7555,7554,7553,7552,7551

Run 7561

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Field	Value
Run number	7561
Start time	Fri Jan 19 15:50:08 2024
Stop time	Fri Jan 19 15:50:52 2024
Events	2585744
Shift crew	The data challenge crew
Comments	Test data from the data challenge. 61.
Subsystems	0
Beam	0
File size	4025406426
Uncompressed data size	5087584320

Record history

Date	Comment
2024/09/13 15:01:38	Database entry inserted
2024/09/13 17:58:25	Comment updated

Updates from DQM

- DQM output:

- ▷ appending runrecord in CDB/RDB with "attribute"
 - write a summary n quality levels for m subsystems
 - possibly version of code

→ write JSON file, invoke curl

e.g. `curl -X PUT -H "Content-Type: application/json" --data-binary @/Users/ursl/tmp/maskfiles/dqm.json http://localhost:5050/rdb/addAttribute/12345`

- ▷ updating mask files in CDB/detConfigs
 - probably only store the "good" maskfiles
 - after iterations, after "manual" (intelligent) validation

→ write mask files, invoke curl

- ▷ the "PixelQuality" record/payload in CDB/Conditions
 - e.g. list of noisy channels

→ generate payloads, invoke curl

- Online DQM "harvesting" should not delay end-of-run DAQ transition

- ▷ better DQM summary from prompt-reco/offline

- Code version should be recorded

- ▷ DQM, because of quality criteria changing over time
- ▷ DAQ s/w version documented where?

```
{
  "Attributes": {
    "DQMOnline": {
      "vertex": "1",
      "fibres": "1",
      "tiles": "1",
      "version": "2024/10/22"
    }
  }
}
```

Detector configuration

- Discussion with pixel people
 - ▷ versioned mask files (different startup settings/backup)
 - ▷ versioned configuration JSON (different startup settings/backup)
- Implemented
 - ▷ curl-based upload/download of JSON file
 - JSON compression $\approx 10^3$ into BLOB
 - curl/REST api without mongodb coupling
 - ▷ curl-based upload of binary mask files
 - curl/REST api without mongodb coupling
 - ▷ curl-based download of binary mask files for a tag
 - returns all files of a tag in one zip file
- Notes for discussion
 - ▷ no integration into MIDAS so far. [Reading configurations from files!](#)
 - ▷ in essence, versioned different startup settings/backups of [files](#)
 - ▷ one common JSON file? tagged JSON files (à la tags and global tags)?