

MPPC alignment

- tag_mppcalignment_datav6.3=2025V0_iov_1 was **wrong**
 - ▷ everywhere (= pc11740, merlin7:/data/project/mu3e/cdb, mu3ebe:/data/mu3e/cdb)
 - ▷ unclear how this happened
 - ▷ Chen Xie pointed this out to me yesterday → **many thanks!**
 - ▷ I fixed it this morning and Chen validated it already → **many thanks!**
- How to check the payload contents?
 - ▷ JSON backend

```
login001>pwd
/data/project/mu3e/offline/mu3e/_build
login001>./modules/mu3eUtil/cdb/test/cdbPrintPayload /data/project/mu3e/cdb/payloads/tag_mppcalignment_datav6.3=2025V0_iov_1
payload ->/data/project/mu3e/cdb/payloads/tag_mppcalignment_datav6.3=2025V0_iov_1<-
dir ->/data/project/mu3e/cdb/payloads/<-
hash ->tag_mppcalignment_datav6.3=2025V0_iov_1<-
hash:      tag_mppcalignment_datav6.3=2025V0_iov_1
comment:  ascii/mppcs-datav6.3=2025V0.csv
schema:   ui_mppc,vx,vy,vz,colx,coly,colz,i_ncol
date:     insertion date
calMppcAlignment::printBLOB(string)
  header:  deadface
  mppc = 0 v = 62.7009/0.244746/-137.625 col = -0.0647048/0.241481/0 ncol = 128
  mppc = 128 v = 54.1754/31.5652/-150.125 col = -0.176777/0.176777/0 ncol = 128
  .. snip ..
  mppc = 3328 v = 31.5602/-54.1804/150.125 col = 0.176777/0.176777/0 ncol = 128
  mppc = 3456 v = 54.415/-31.1682/137.625 col = 0.0647048/0.241481/0 ncol = 128
login001>
```

Web CDB browser

- The CDB browser now displays and decodes payloads:
(iovs - run range - selection to be improved)

The screenshot shows the MU3E CDB Browser interface. The top navigation bar includes a search bar and a filter button. The main content area is divided into several sections:

- Global Tags1**: A list of global tags with a filter input field. The tags include `datav6.1=2025CosmicsVtxOnly`, `mcidealv5.0`, `mcidealv5.1`, and `mcidealv5.2`.
- Tags datav6.3=2025V0**: A list of tags for the selected dataset. The selected tag is `mppcalignment_datav6.3=2025V0`. Other tags include `fibrealignment_datav6.3=2025V0`, `tilealignment_datav6.3=2025V0`, `pixelqualitylm_datav6.3=2025V0`, and `tilequality_datav6.3=2025V0`.
- Payloads mppcalignment_datav6.3=2025V0 (Total IOVs: 1) (1 payloads)**: A table showing the payload details.
- Detconfigs Summary**: A table showing the configuration files for the selected tag.

IOV	Date	Comment	Schema
1	12/4/2025, 9:00:40 AM	ascii/mppcs-datav6.3=2025V0.csv	ui_mppc,vx,vy,vz,colx,coly,colz,i_ncol

Tag	Files	Actions
bla	3	Download Delete
mask_408	132	Download Delete
mask_408bis	2	Download Delete

The screenshot shows the MU3E CDB Browser interface with a modal window open for the selected payload. The modal displays the following information:

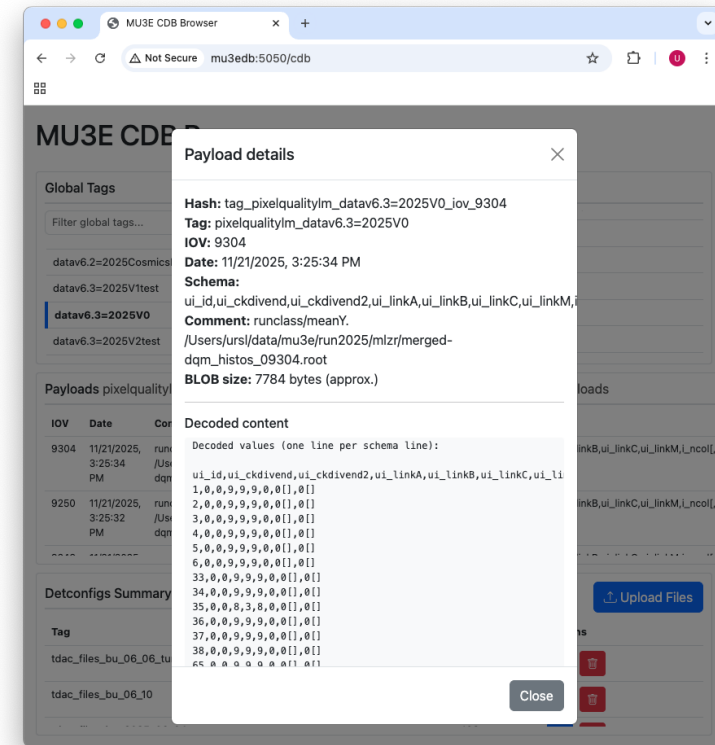
- Hash**: `tag_mppcalignment_datav6.3=2025V0_iov_1`
- Tag**: `mppcalignment_datav6.3=2025V0`
- IOV**: 1
- Date**: 12/4/2025, 9:00:40 AM
- Schema**: `ui_mppc,vx,vy,vz,colx,coly,colz,i_ncol`
- Comment**: `ascii/mppcs-datav6.3=2025V0.csv`
- BLOB size**: 1544 bytes (approx.)
- Decoded content**: A list of decoded values for the schema.

The decoded content is displayed as a list of values, one line per schema line. The values are:

```
ui_mppc,vx,vy,vz,colx,coly,colz,i_ncol
0,62.700924320281,0.244746340210268,-137.625,-0.064704761275628
128,54.1753962176565,31.5652426226131,-150.125,-0.1767766952966
256,31.1660758504976,54.4155790491029,-137.625,-0.2414814565722
384,-0.236593190710398,62.7031089501053,-150.125,-0.24148145657
512,-31.5637464233784,54.1768924168911,-137.625,-0.176776695296
640,-54.4194459346165,31.1516444372937,-150.125,-0.064704761275
768,-62.7037067640515,-0.234362118689624,-137.625,0.06470476127
896,-54.1854680860458,-31.5551707542238,-150.125,0.176776695296
1024,-31.1469852715233,-54.4206943543221,-137.625,0.24148145657
1152,0.215492950282284,-62.7087627424881,-150.125,0.24148145657
1280,31.5645470873714,-54.1760917528982,-137.625,0.176776695296
1408,54.4215454095737,-31.143809090084,-150.125,0.0647047612756
2048,62.6995680921853,0.249807852369964,-150.125,-0.064704761275
2176,54.191386305593,31.5492525346766,137.625,-0.17677669529663
```

pixelquality

- More improvements?
 - ▷ Thomas S not happy with the previous version (LVDS errors, status values)
- New algorithm
 - ▷ chips
 - no hits at all (status: 8)
 - ≥ 1 subMatrix with hits at top or bottom edge **only** (status: 6)
 - "bad" chips, currently "102" (status: 3)
 - all links masked (status: 9)
 - ▷ links
 - no hits (status: 8) or masked (status: 9)
 - LVDS error rate > 10 Hz (status: 4)
 - LVDS error rate > 10 Hz on **unmasked other link** (status: 5)
 - i.e. no more consideration of link "E"
 - ▷ pixels as before
- Side-remarks
 - ▷ network alias mu3edb.psi.ch (but needs 5050)
 - ▷ payload display also works for pixelquality



What GTs are needed?

- Data

- ▷ quality (noisy/dead/masked/. . .) of detector components
- ▷ calibrations (e.g. Nik's PixelTime)
- ▷ alignment information

- Monte Carlo

- ▷ "ideal"
 - for the "baseline" ("nominal") goal (TDR, wish, . . .)
 - perfect alignment (detectors and target)
- ▷ "realistic" - this is what one uses for (data :-) analysis
 - for understanding your data
 - correct (perfect) MC for inefficiencies and deficiencies
 - to determine efficiency (and acceptance)
 - imperfect alignment (as in data)
(if not: no data/MC overlays with absolute coordinates possible)
(e.g. 3-prong vertex positions on target)

- Currently, the data GT can be used for the "realistic" MC GT

- ▷ should not add inefficiencies to the data GT
(careful about command line arg switches and tags/payloads)

Miscellaneous

- Tiles removal in mu3eSort (Haris)
 - ▷ still on remove_missLink → should be merged
 - ▷ side note (Alex): hit addition/removal in two places - midas vs root input
- Efficiency modeling
 - ▷ pixel sensor efficiency? one single number per chip??
 - ▷ only for "mcrealistic" tag ($\varepsilon = 1$ for "mcideal" and "data")
- mu3eUtil/cdb/test/cdbWritePayload.cpp
 - ▷ now can read root files with alignment trees for sensors and mppc
 - ▷ the rest will follow
- To do
 - ▷ fibres quality coding and payloads
 - ▷ patching of significant list with fibres/tiles good run list
 - ▷ . . .