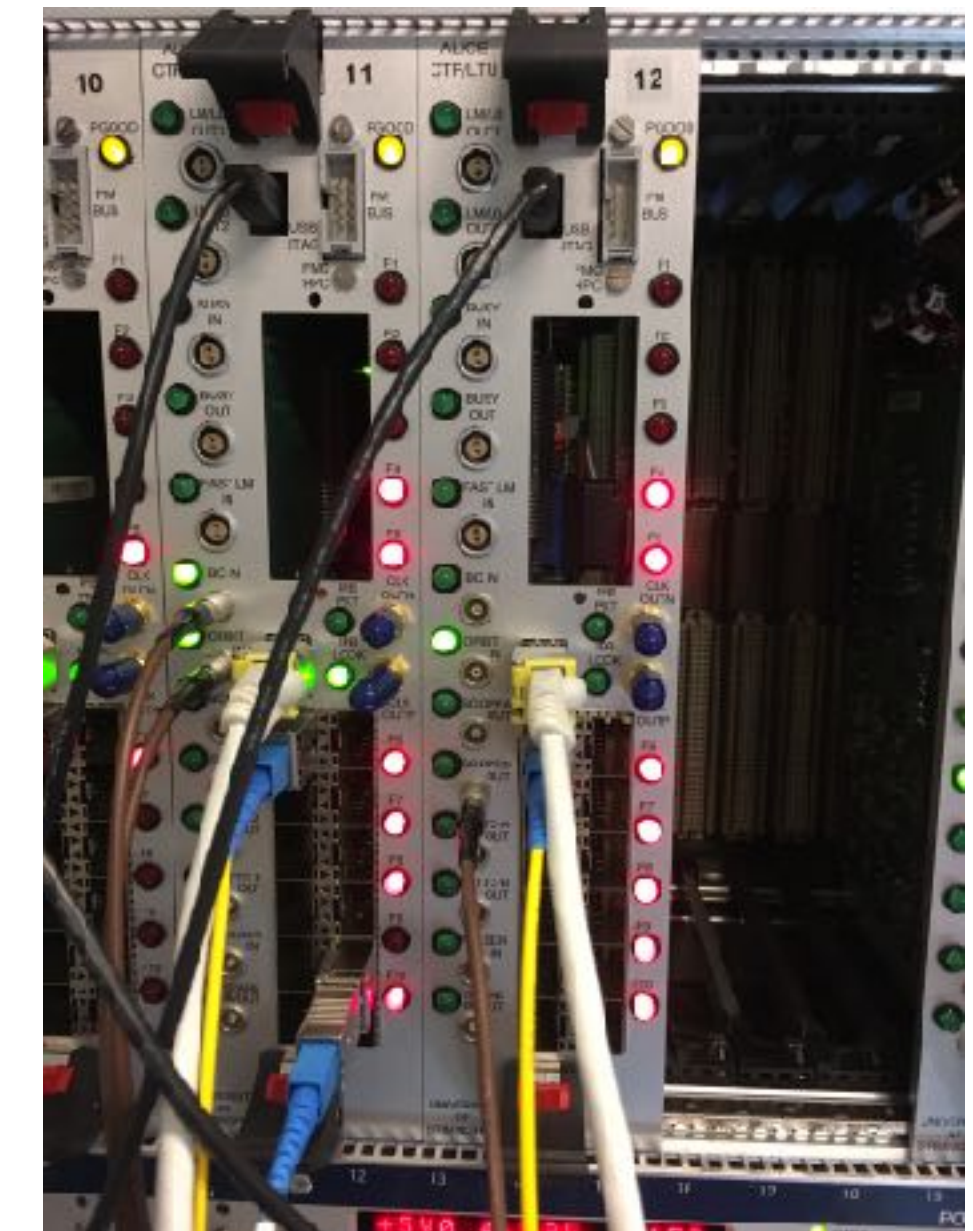
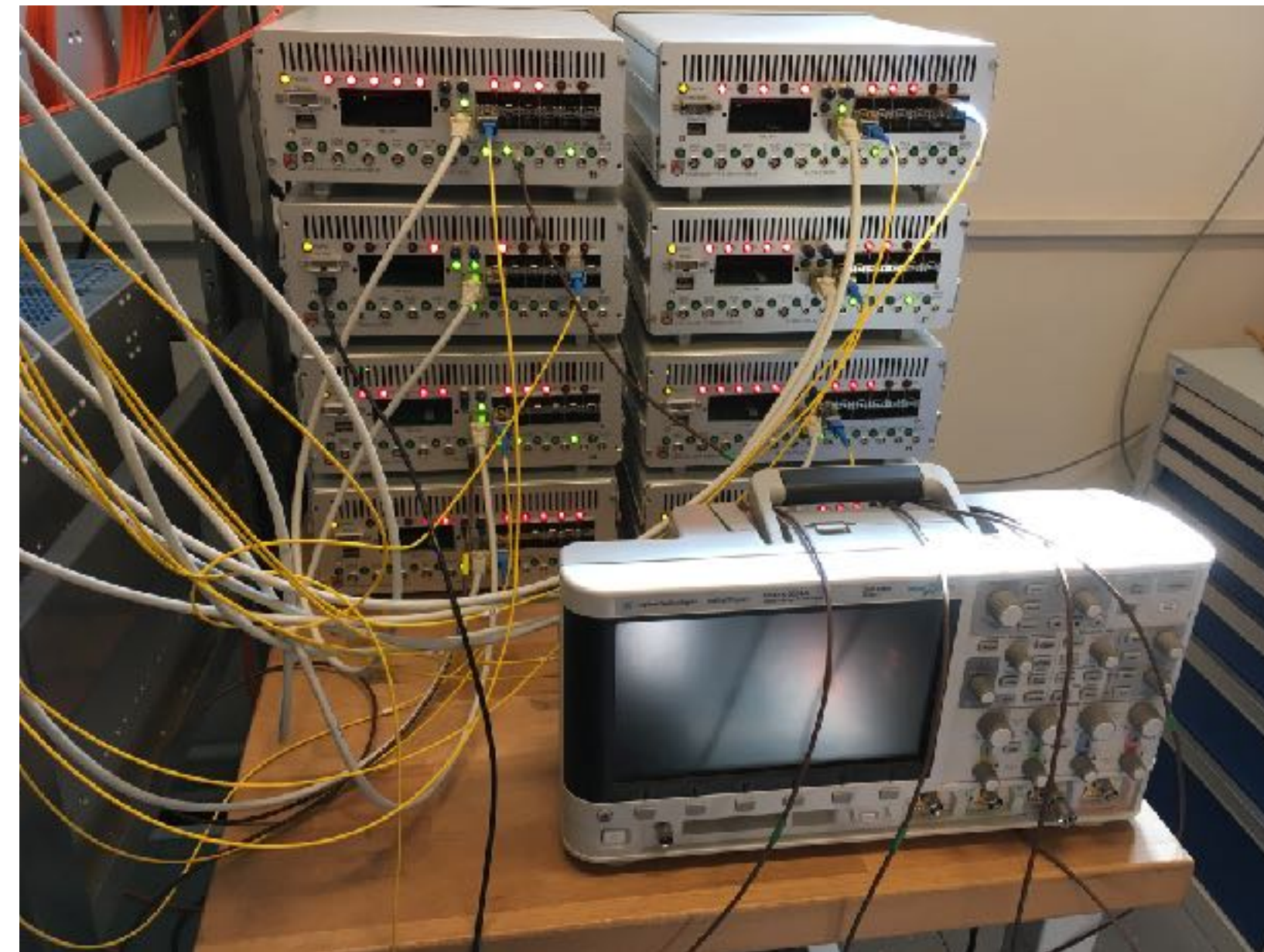
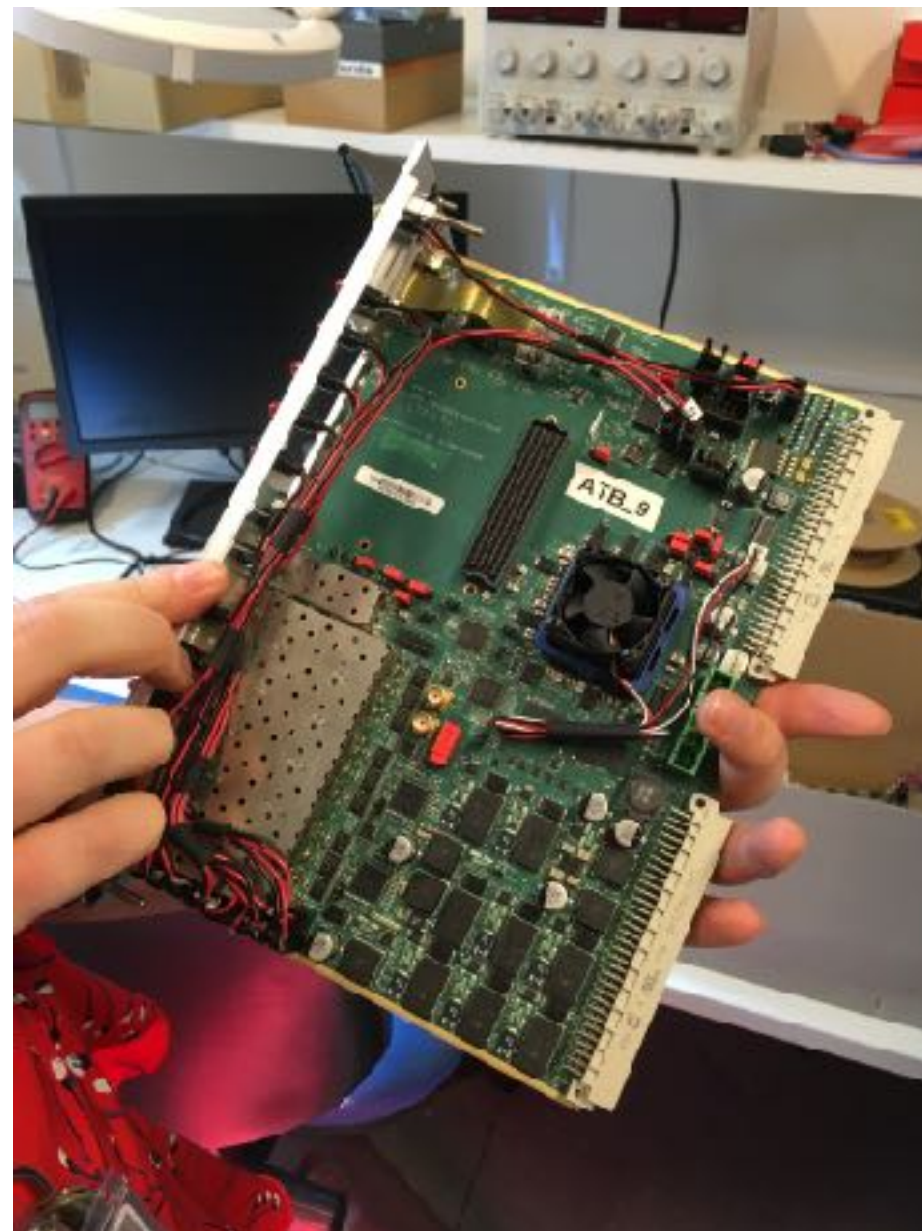


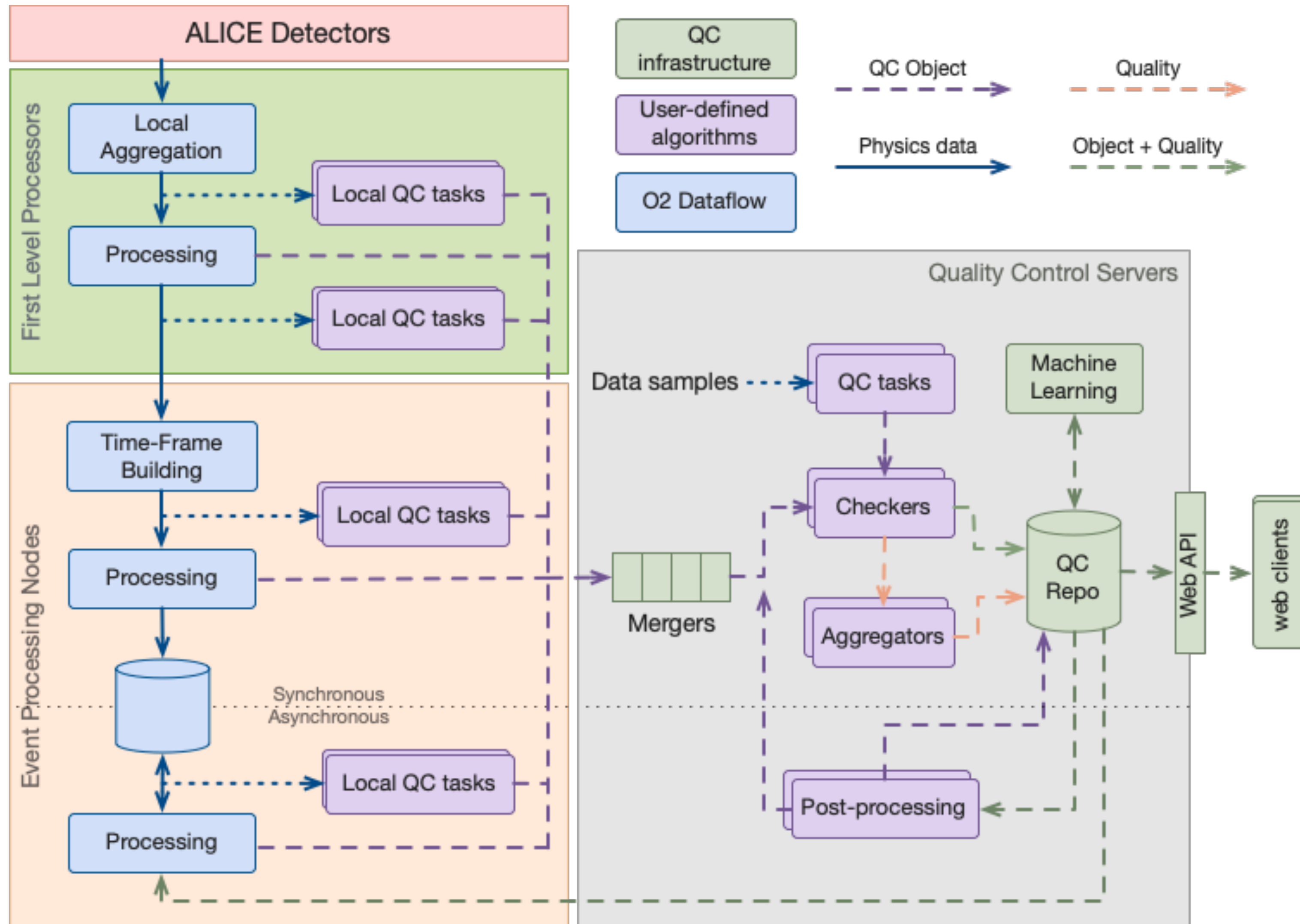
# Quality Control (QC) for the CTP in Run3 - recent status



Marek Bombara, Pavol Jozef Šafárik University, 16/02/2023



# QC Architecture



- local QC task should run on the machine (CTP-FLP)
- CTP can have task after each step of data aggregation: FLP, EPN: checking sub timeframes, timeframes, even AODs,...
- can also check the trigger implementation in O<sup>2</sup> using raw data reading

# Introduction

- QC provides data quality control and monitoring of all systems and detectors in Run3
- part of the O<sup>2</sup> software framework
- GitHub link: <https://github.com/AliceO2Group/QualityControl>
- CTP in QC: <https://github.com/AliceO2Group/QualityControl/tree/master/Modules/CTP>

# CTP tasks for QC so far

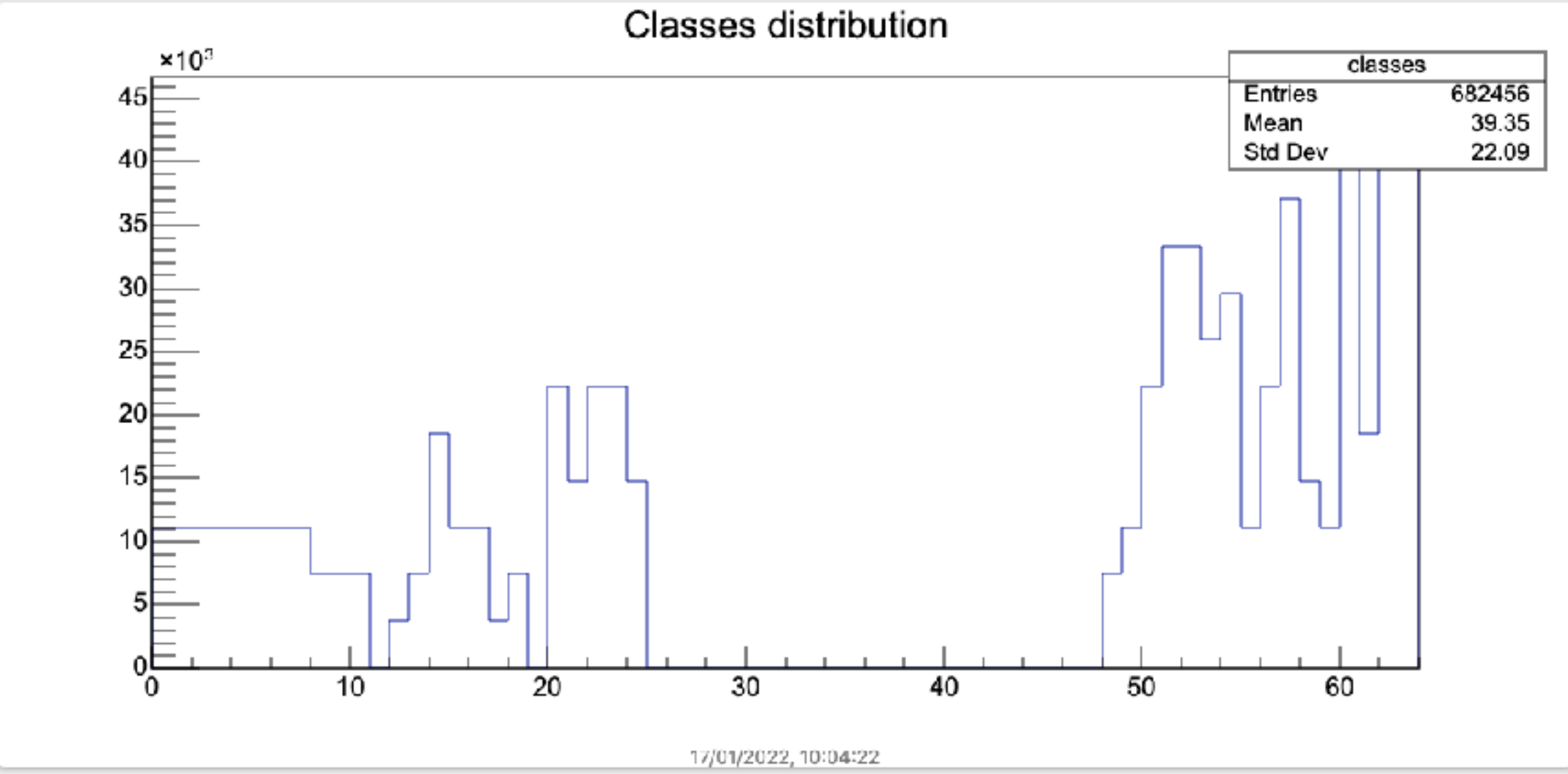
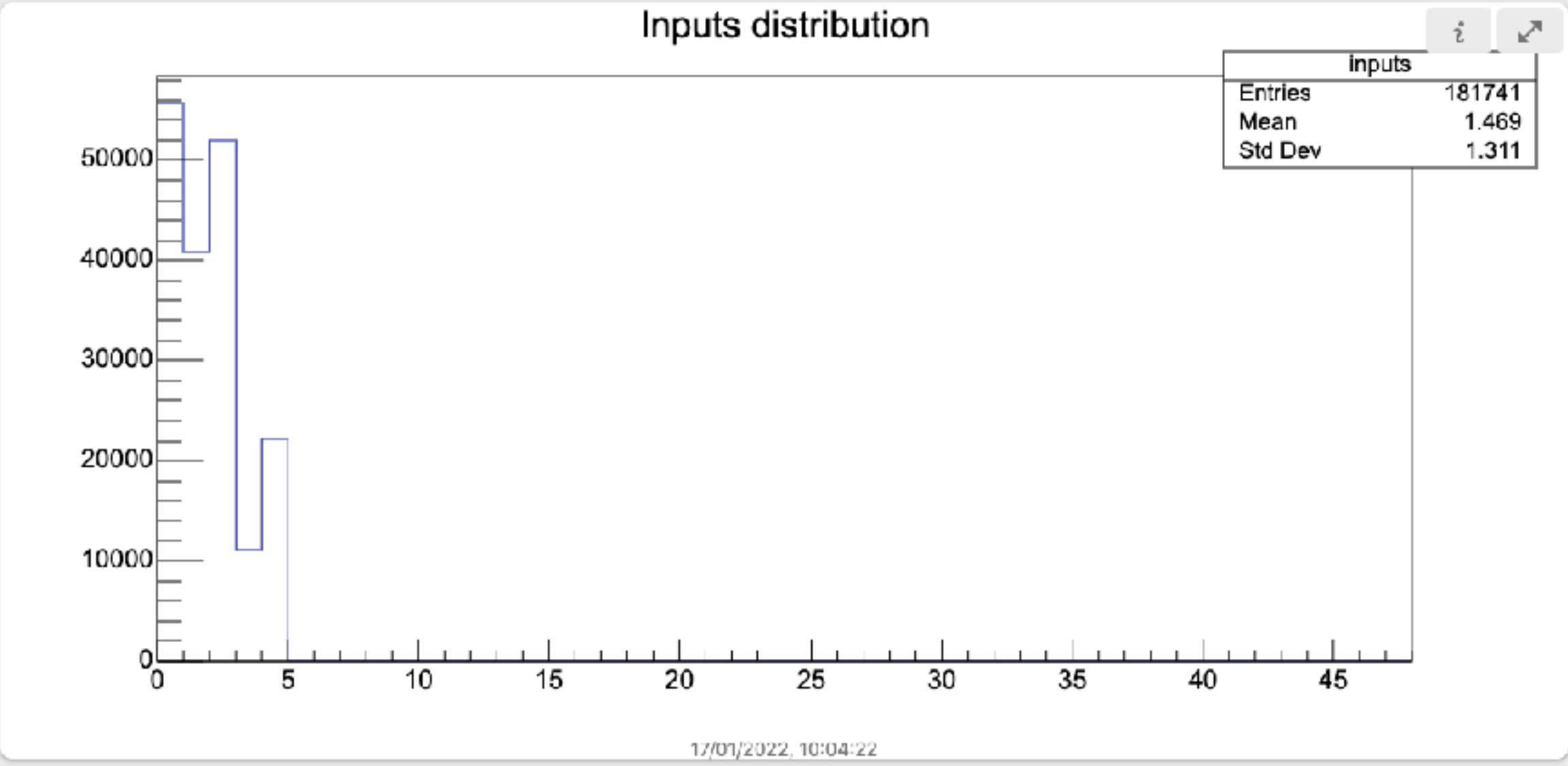
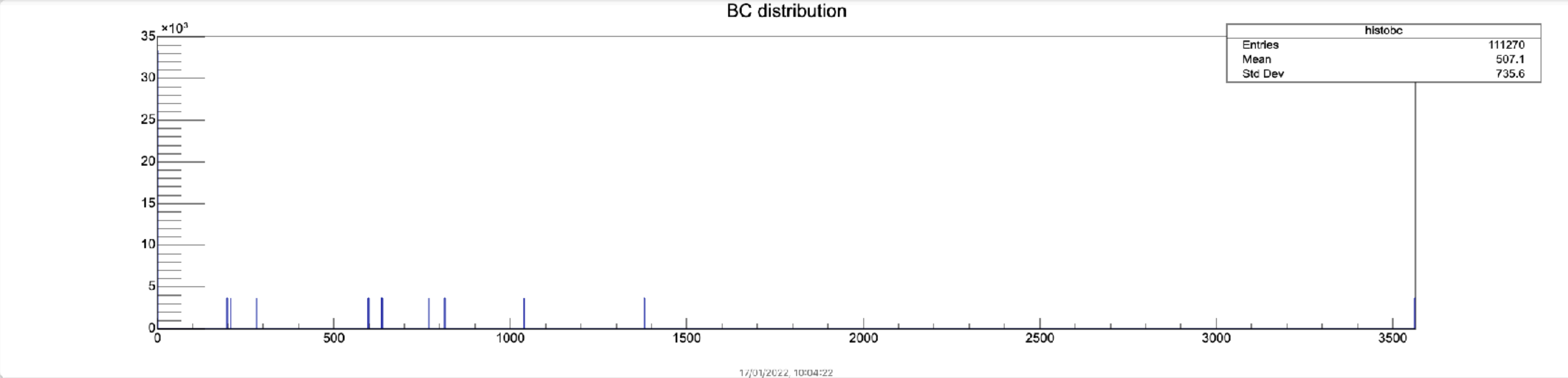
- Reading raw file created in the simulation: RawTask.cxx
- Reading counters published via ctp-qc-proxy
- Reading raw file created in the lab with TST detector

# Reading raw file created in the simulation

- Main script: `QualityControl/Modules/CTP/src/RawDataQcTask.cxx`
- Generating the raw file:
  1. `o2-sim -n 10 -m FT0 FV0 ITS CTP -g pythia8pp -j10`
  2. `o2-sim-digitizer-workflow -b`
  3. `o2-ctp-digi2raw`
- Running the CTP QC: `o2-raw-file-reader-workflow --loop -1 --input-conf CTPraw.cfg | o2-qc --config json://readoutctp.json`
- Published results (3 histograms): BC distribution, Inputs (48 bins) distribution, Classes (64 bins) distribution
- Developed and tested on `cru-server2`

# Published results

- EXPLORE
- Layouts
- Clubs
- MY LAYOUTS
- RawFileReading



# Reading counters published via ctp-qc-proxy

- Main script: QualityControl/Modules/CTP/src/CountersQcTask.cxx
- Start, stop, configure runs in the lab: trigger@acs13 via ecsc
- Running the CTP QC (lab or P2):  
`o2-ctp-qc-proxy --ctp-qc-proxy ' --channel-config "name=ctp-qc-proxy,type=sub,method=connect,address=tcp://128.141.175.223:50090,rateLogging=5,transport=zeromq" ' -b | o2-qc --config json://$HOME/o2counters/counters.json`
- Published results: total counts, 48 Input rate histograms, 64 class rate histograms, class rates per run
- Developed and tested on cru-server2

# Published results: Total counters

EXPLORE

Layouts

Objects

MY LAYOUTS

ClassRatesPerRun

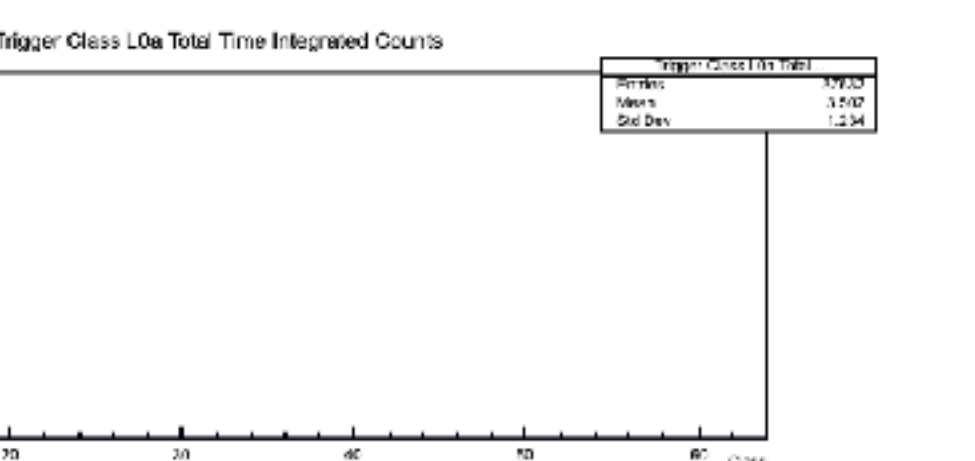
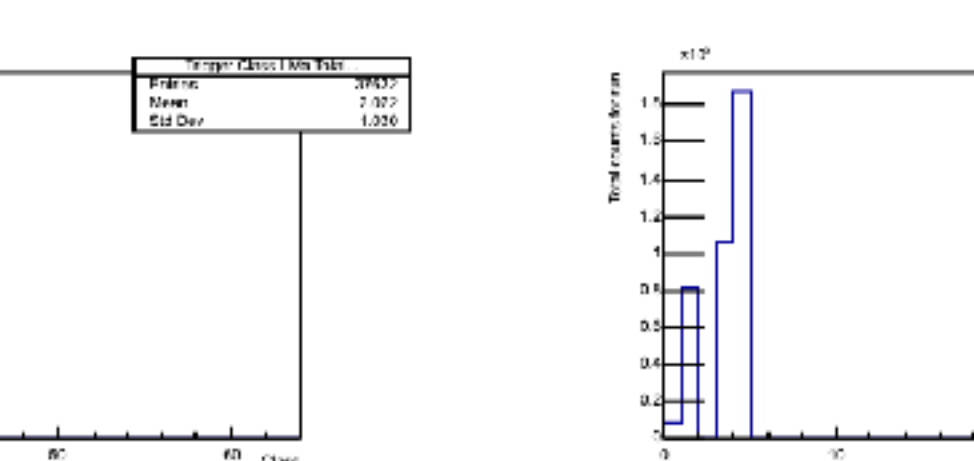
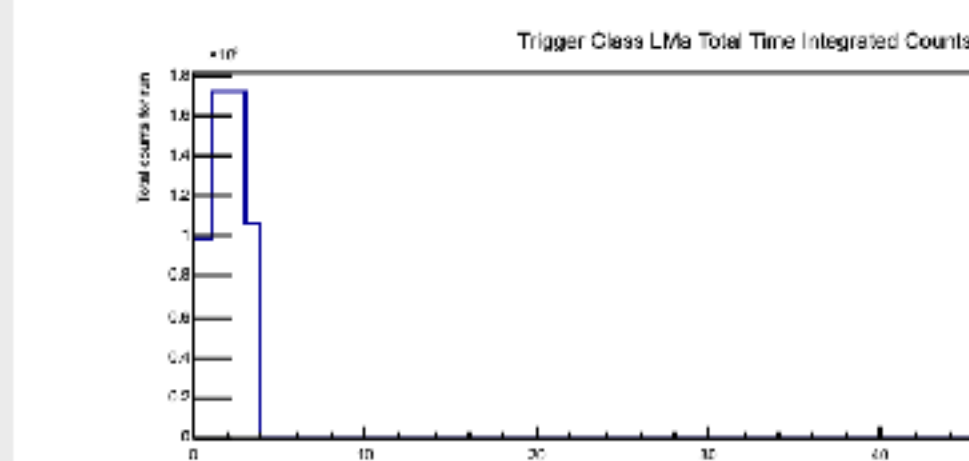
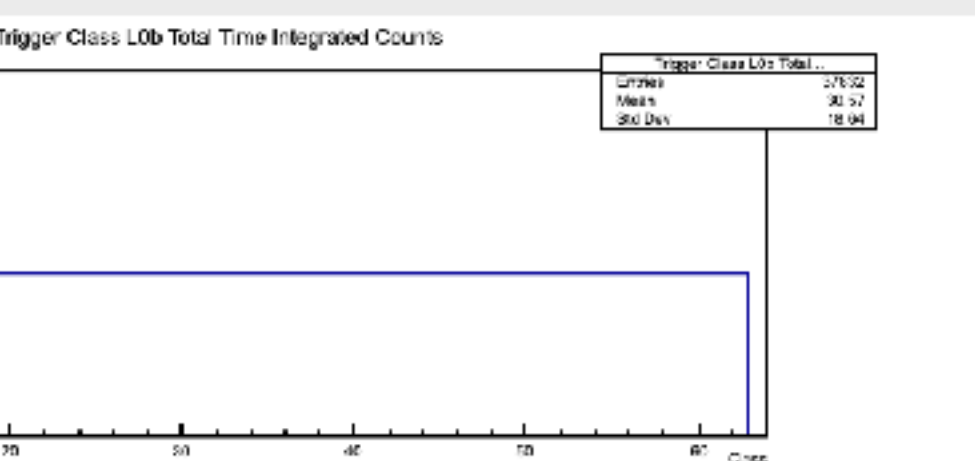
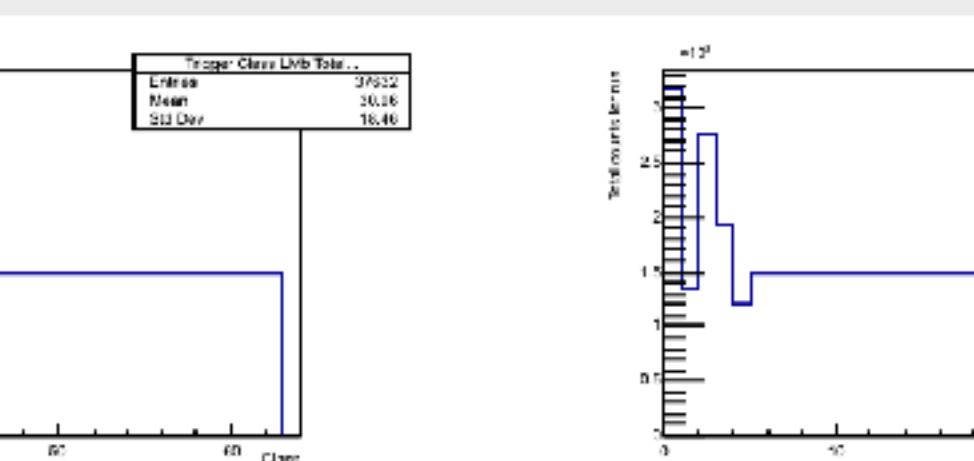
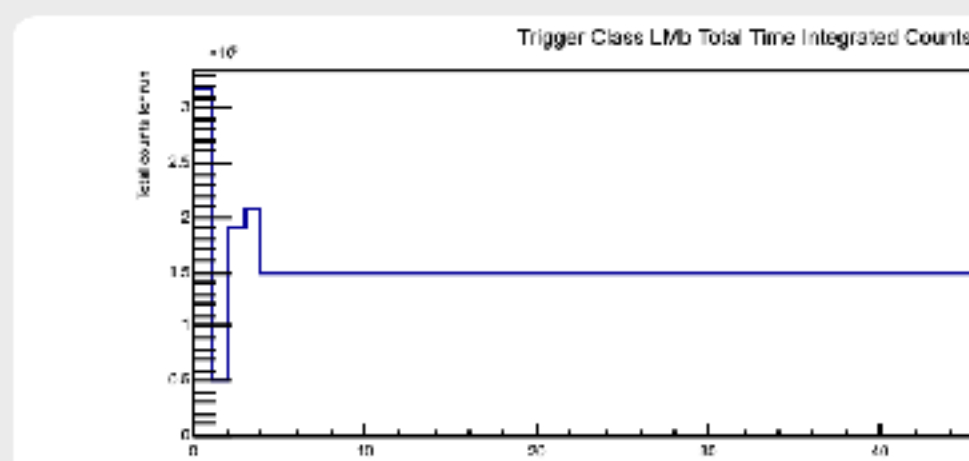
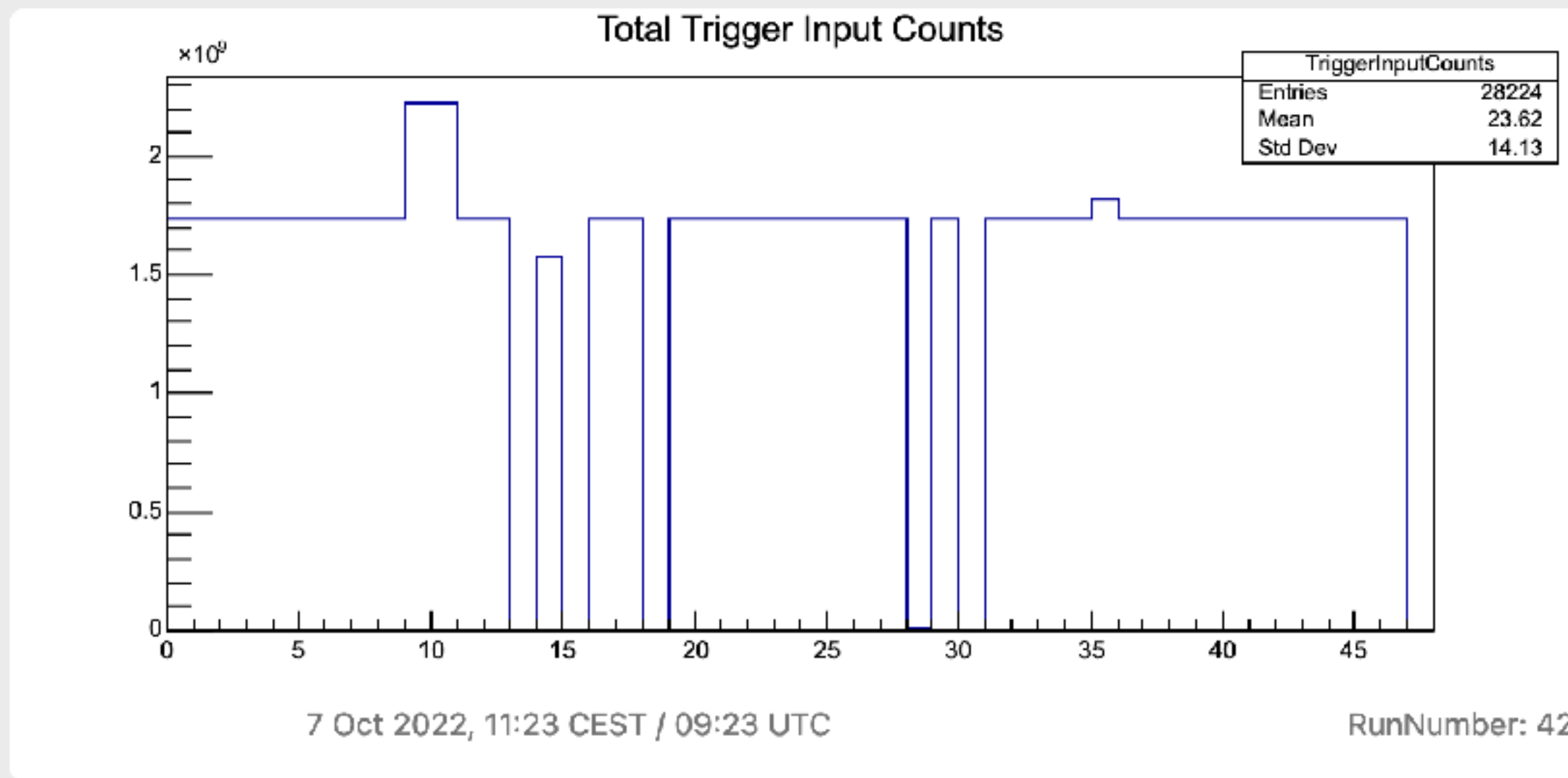
CountersClassRates

CountersInputRates

RawFileReading

**TotalCounters**

RunNumber  RunType  PeriodName  PassName  Update





# Published results: 48 input rates

EXPLORE

Layouts

Objects

MY LAYOUTS



ClassRatesPerRun

CountersClassRates

CountersInputRates

RawFileReading

TotalCounters

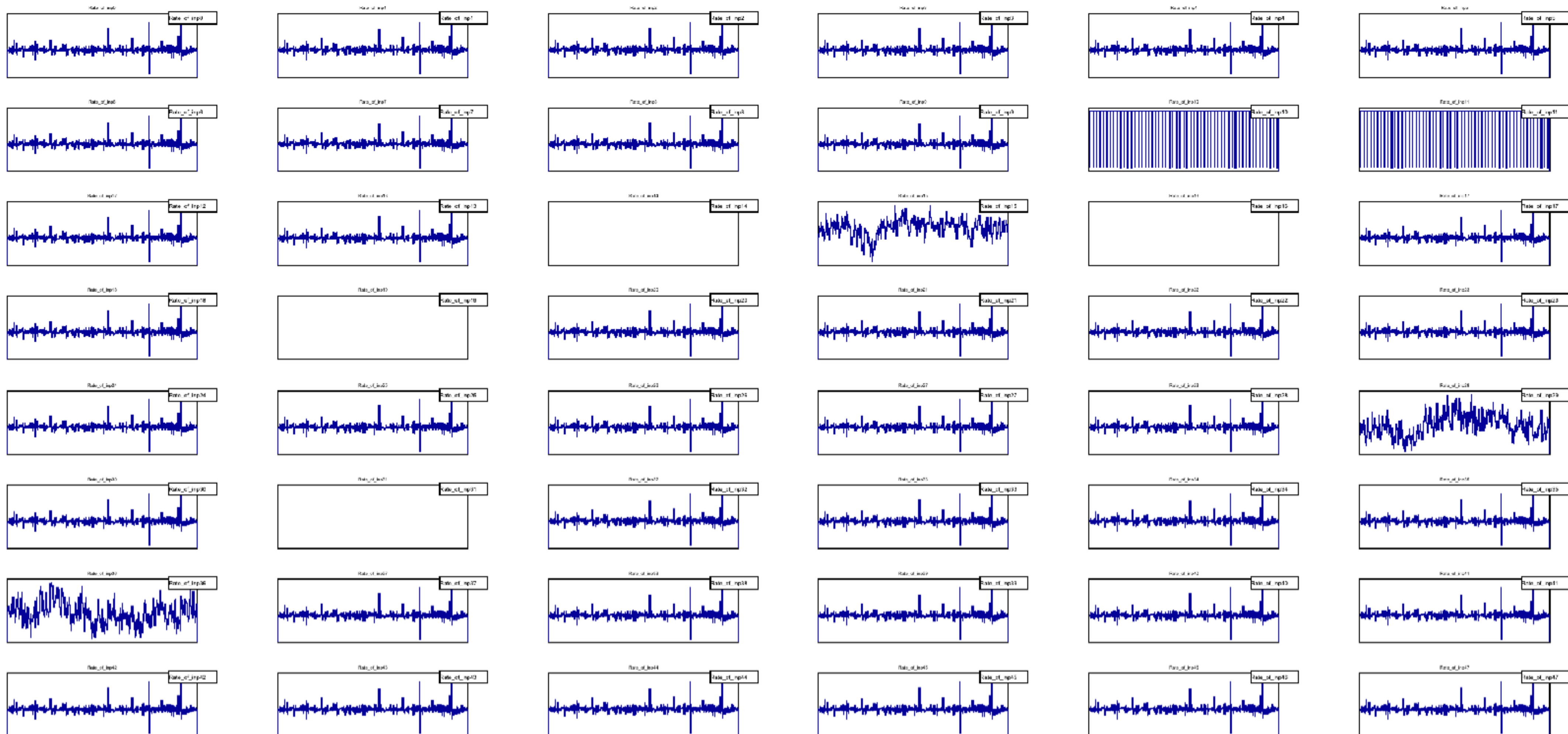
RunNumber



RunType

PeriodName

PassName



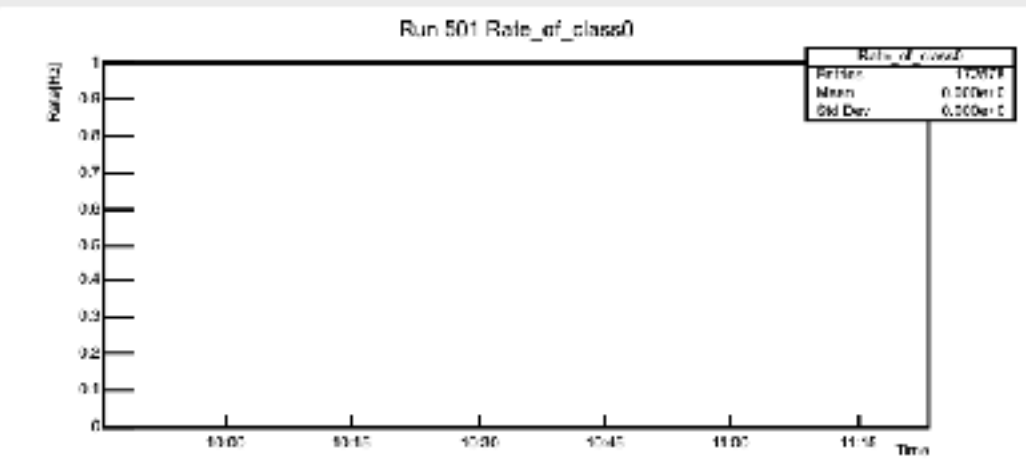


# Published results: Class rates per run

Quality Control main ClassRatesPerRun

EXPLORE Update

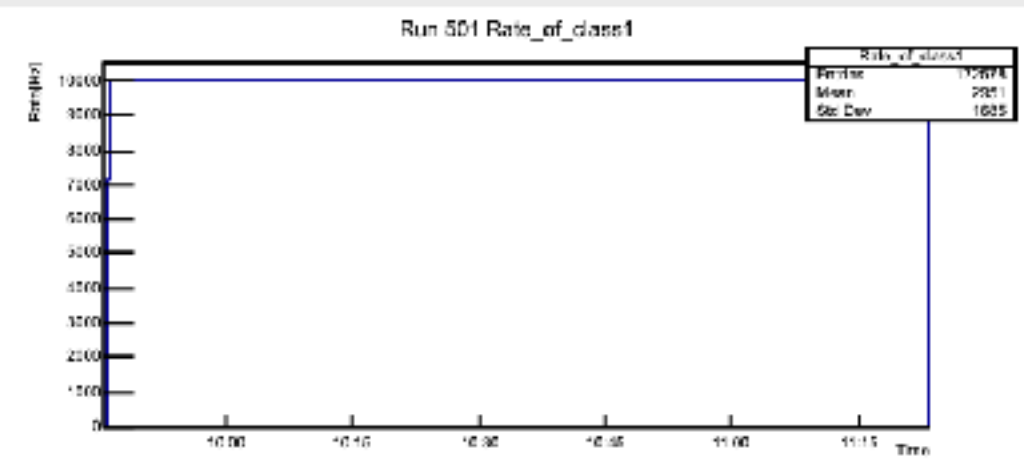
RunNumber  RunType  PeriodName  PassName



Run 501 Rate\_of\_class0

| Rate_of_class0 |          |
|----------------|----------|
| Entries        | 172578   |
| Mean           | 0.000e+0 |
| Std Dev        | 0.000e+0 |

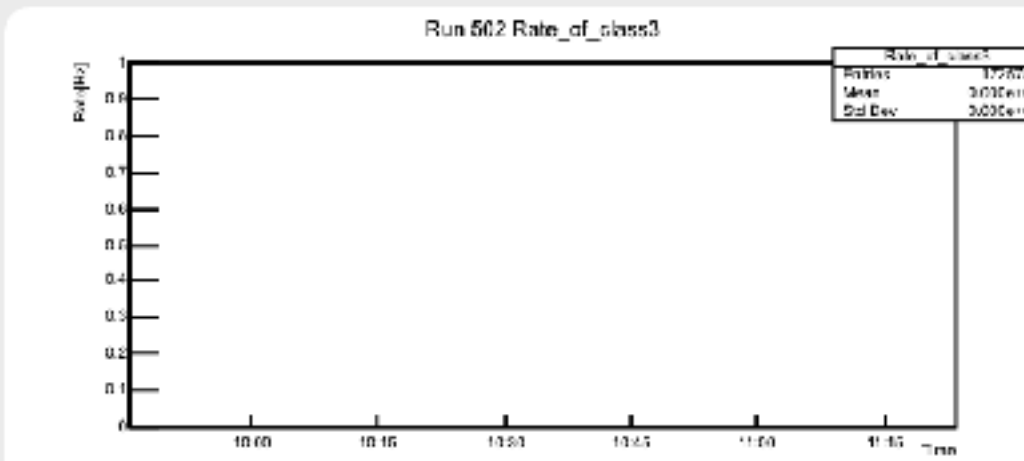
7 Oct 2022, 11:23 CEST / 09:23 UTC



Run 501 Rate\_of\_class1

| Rate_of_class1 |        |
|----------------|--------|
| Entries        | 172578 |
| Mean           | 2961   |
| Std Dev        | 1679   |

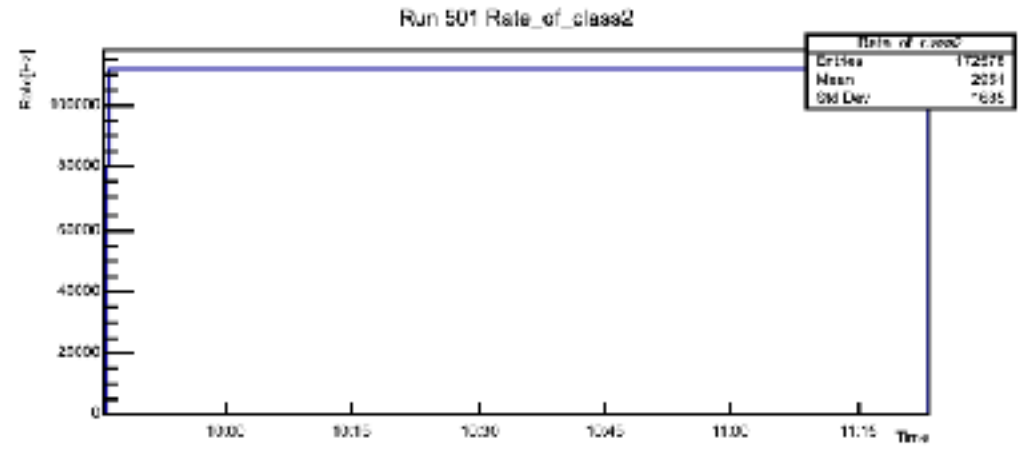
RunNumber: 42



Run 502 Rate\_of\_class3

| Rate_of_class3 |        |
|----------------|--------|
| Entries        | 172578 |
| Mean           | 2961   |
| Std Dev        | 1679   |

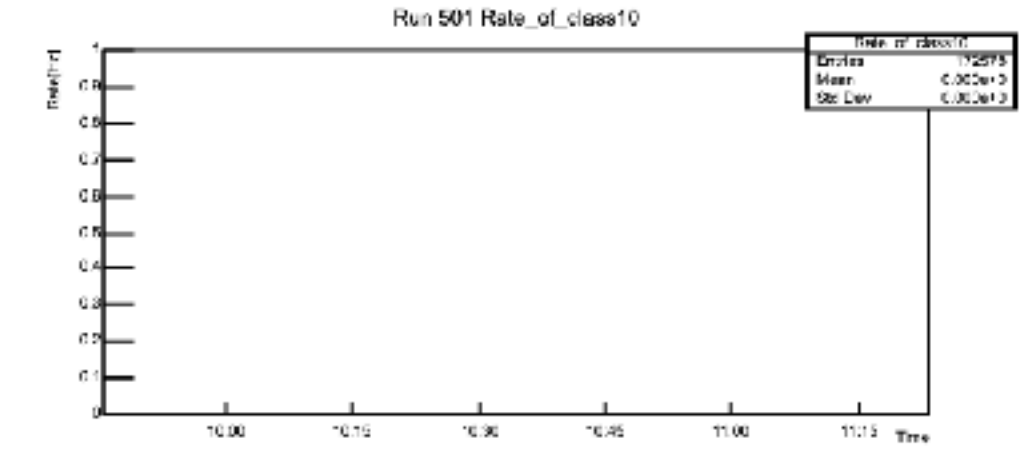
7 Oct 2022, 11:23 CEST / 09:23 UTC



Run 501 Rate\_of\_class2

| Rate_of_class2 |        |
|----------------|--------|
| Entries        | 172578 |
| Mean           | 2961   |
| Std Dev        | 1679   |

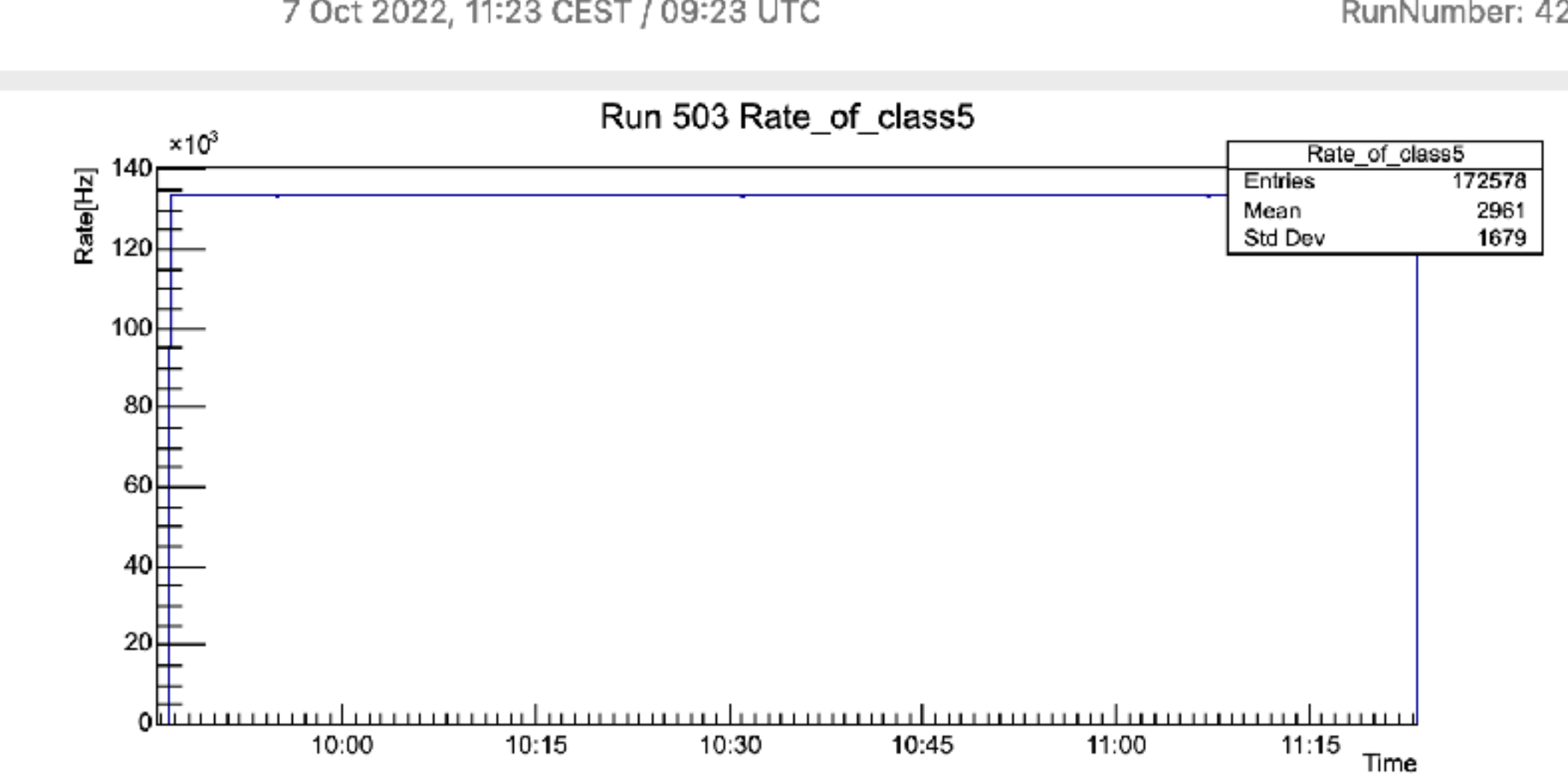
7 Oct 2022, 11:23 CEST / 09:23 UTC



Run 501 Rate\_of\_class10

| Rate_of_class10 |          |
|-----------------|----------|
| Entries         | 172578   |
| Mean            | 0.000e+0 |
| Std Dev         | 0.000e+0 |

RunNumber: 42

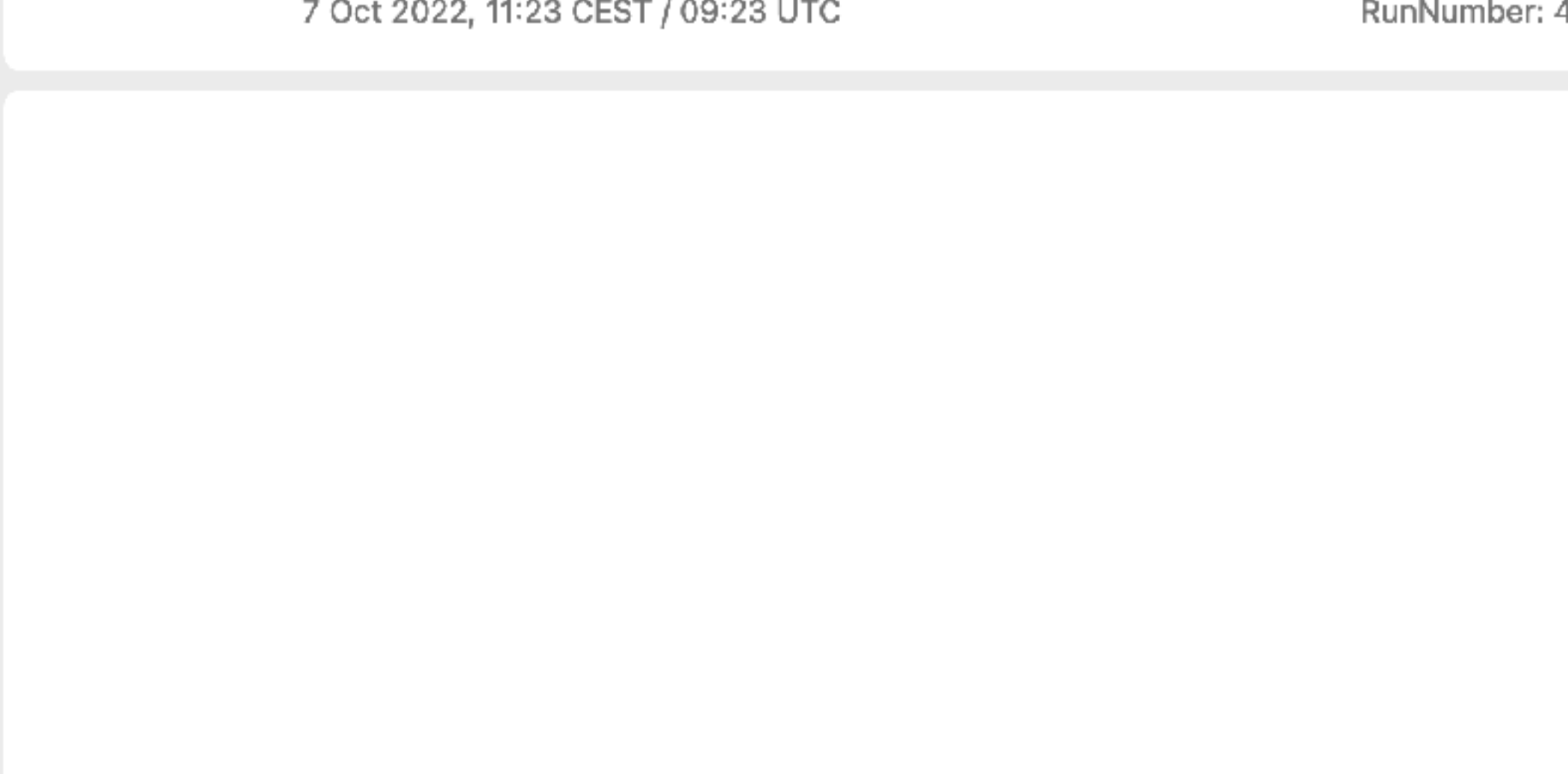


Run 503 Rate\_of\_class5

| Rate_of_class5 |        |
|----------------|--------|
| Entries        | 172578 |
| Mean           | 2961   |
| Std Dev        | 1679   |

7 Oct 2022, 11:23 CEST / 09:23 UTC

RunNumber: 42



7 Oct 2022, 11:23 CEST / 09:23 UTC

RunNumber: 42

Layouts: ClassRatesPerRun, CountersClassRates, CountersInputRates, RawFileReading, TotalCounters

About

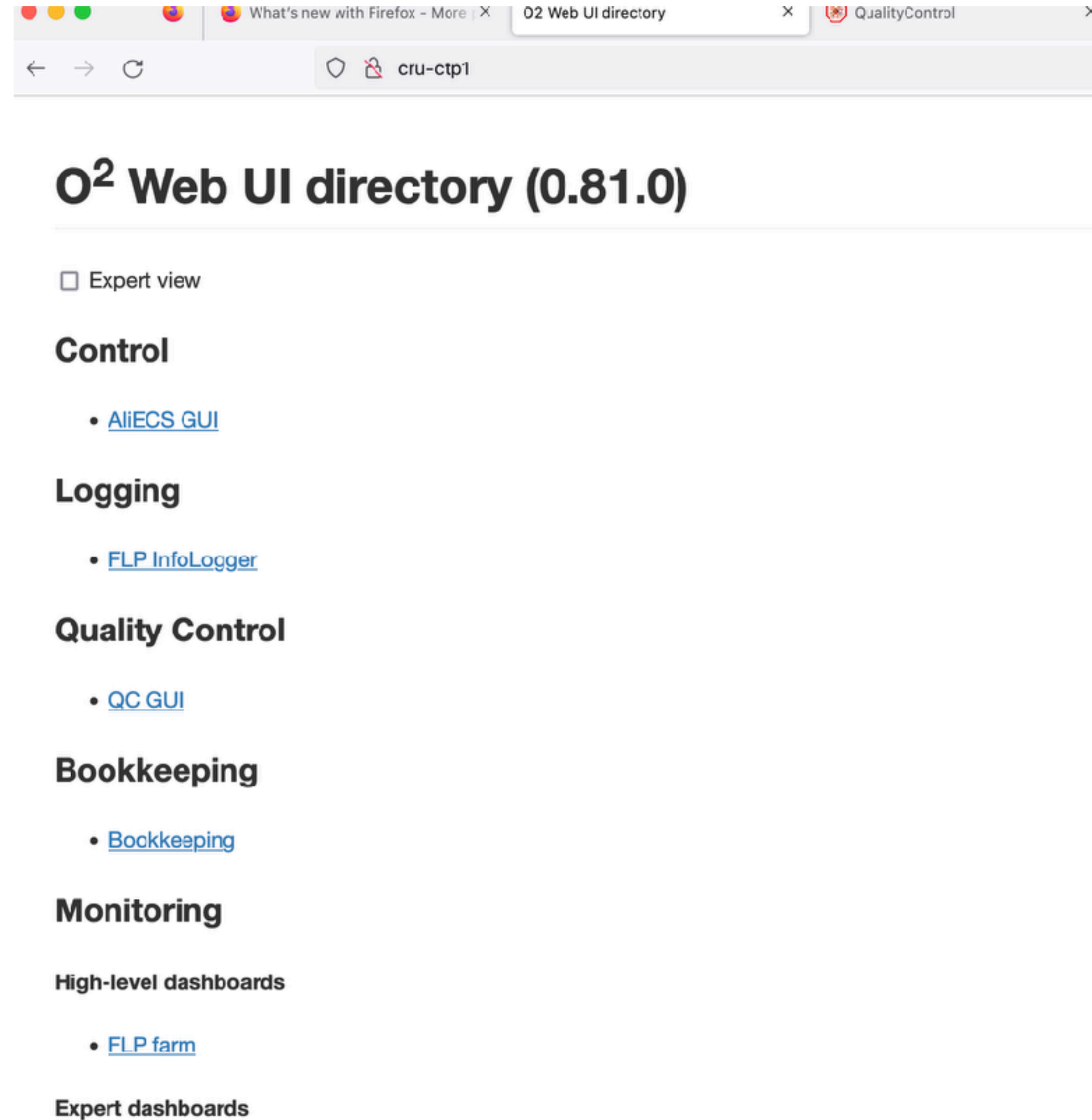
# Reading raw file created in the lab with TST detector

- Main script: QualityControl/Modules/CTP/src/RawDataQcTask.cxx
- Configuring the environment at cru-ctp1
- Running the CTP QC (in ControlWorkflows/jit/ctp-raw-qc):  

```
o2-dpl-raw-proxy -b --session default --dataspec 'x:CTP/RAWDATA;dd:FLP/DISTSUBTIMEFRAME/0' --readout-proxy '--channel-config "name=readout-proxy,type=pull,method=connect,address=ipc:///tmp/stf-builder-dpl-pipe-0,transport=shmem,rateLogging=10"' | o2-ctp-reco-workflow -b --configKeyValues 'NameConf.mCCDBServer=http://127.0.0.1:8084;' | o2-qc -b --config consul-json://{{ consul_endpoint }}/o2/components/qc/ANY/any/ctp-raw-qc | o2-dpl-output-proxy --environment DPL_OUTPUT_PROXY_ORDERED=1 -b --session default --dataspec 'x:CTP/RAWDATA;dd:FLP/DISTSUBTIMEFRAME/0' --dpl-output-proxy '--channel-config "name=downstream,type=push,method=bind,address=ipc:///tmp/stf-pipe-0,rateLogging=10,transport=shmem"'
```
- Developed and tested: cru-ctp3 and cru-ctp1



# cru-ctp1 directory, for testing - ALIECS GUI



# Setting environment

Control

ENVIRONMENTS

- + Create
- Active
- Task list

HARDWARE

- Links
- FLPs

ADMIN

- Locks

## New Environment

Detector View: GLOBAL

### Select Template

Repository:

Revision:

Workflow:

### Detectors Selection

TST (1/2)

### FLP Selection (1 out of 2 selected)

cruc-ctp1 -- TST  
cruc-ctp2 -- TST

### General Configuration

DCS

Data Distribution (FLP)

EPN

TRG

Run Type:

CTP Readout

Load from existing configurations:

Save As Update

### Advanced Configuration

Readout URI:

QC URI:

readout\_cfg\_uri:

ctp\_readout\_host:

extra\_env\_vars:

Add single pair:

Add a JSON with multiple pairs:

# Active environment

Browser address bar: [cru-ctp1.dyndns.cern.ch:8080/?page=environments](http://cru-ctp1.dyndns.cern.ch:8080/?page=environments)

Control **Environments** +

ENVIRONMENTS **Detector View: GLOBAL**

+ Create

**Active**

Task list

HARDWARE

Links

FLPs

ADMIN

Locks

### Active Environments

| Run      | ID                          | Detectors | Run Type | Created                | FLPs | EPNs | DCS | TRG | CTP Readout | ODC | State          | InfoLogger          |
|----------|-----------------------------|-----------|----------|------------------------|------|------|-----|-----|-------------|-----|----------------|---------------------|
| <b>7</b> | <a href="#">2dWBFbnNGyn</a> | TST       | PHYSICS  | 2/13/2023, 10:31:29 AM | 1    | OFF  | OFF | OFF | OFF         | -   | <b>RUNNING</b> | <a href="#">FLP</a> |

# Active environment - details

Control Environment details

STOP KILL

FLP EPN

Readout **612 MB/s** StfBuilder **612 MB/s**

## No data

500 MB/s  
250 MB/s  
0 B/s

06:10 06:15 06:20 06:25 06:30 06:35

— Readout — StfBuilder

InfoLogger  
FLP

|                        |                           |
|------------------------|---------------------------|
| <b>Run Number</b>      | <b>7</b>                  |
| <b>Run Type</b>        | PHYSICS                   |
| <b>ID</b>              | 2dWBFbnNGyn               |
| <b>Created</b>         | 2/13/2023, 10:31:29 AM    |
| <b>State</b>           | <b>RUNNING</b>            |
| <b>Root Role</b>       | readout-dataflow          |
| <b>Number of Tasks</b> | 5                         |
| <b>FLP count</b>       | 1                         |
| <b>Detectors</b>       | TST                       |
|                        | DCS: OFF                  |
|                        | Data Distribution: ON     |
|                        | cpv_dcs_eor_parameters {} |

ENVIRONMENTS

- + Create
- Active
- Task list

HARDWARE

- Links
- FLPs

ADMIN

- Locks

About

Collapse Sidebar



# Active running environment - InfoLoggerFLP

Browser address bar: cru-ctp1.dyndns.cern.ch:8081/?q={"partition":{"match":"2dWBFbnNGyn"},"run":{"match":"7"},"severity":{"in":["I W E F"]}}

Query Live Clear [Navigation] Download [Severity: Debug, Info, Warn, Error, Fatal] [Filter: Ops, Support, Devel, Trace] [Count: 50k, 100k, 1M] Reset filters

| Date  | Time  | Hostname     | Rolename | PID    | Username               | System      | Facility | Detector   | Partition   | Run | ErrCode | ErrLine | ErrSource | Message |
|-------|-------|--------------|----------|--------|------------------------|-------------|----------|--|-------------|-----|---------|---------|-----------|---------|
|       | from  | match        |          |        |                        |             |          |  | 2dWBFbnNGyn | 7   |         |         |           |         |
|       | to    | exclude      |          |        |                        |             |          |  |             |     |         |         |           |         |
| Se... | Le... | Time         | Rolename | System | Facility               | Partition   | Run      | Message  |             |     |         |         |           |         |
| E     | 1     | 10:32:35.410 | cru-ctp1 | ECS    | core/bookkeepingcli... | 2dWBFbnNGyn | /        | Bookkeeping API RunServiceClient: Create error call="RunServiceClient.Create" error="rpc error: code = Unavailable desc = connection error: desc = "transport: Error while dialing dial t... |             |     |         |         |           |         |
| E     | 1     | 10:32:35.411 | cru-ctp1 | ECS    | core/bookkeepingcli... | 2dWBFbnNGyn | 7        | Bookkeeping API LogServiceClient: Create error call="LogServiceClient.Create" error="rpc error: code = Unavailable desc = connection error: desc = "transport: Error while dialing dial t... |             |     |         |         |           |         |
| I     | 1     | 10:32:35.412 | cru-ctp1 | FCS    | core/env               | 2dWBFbnNGyn | 7        | starting new run   |             |     |         |         |           |         |
| I     |       | 10:32:35.419 | cru-ctp1 | FLP    | datacist/stfsender     | 2dWBFbnNGyn | 7        | [FMQ] READY ---> RUNNING   |             |     |         |         |           |         |
| I     |       | 10:32:35.419 | cru-ctp1 | FLP    | datacist/stfsender     | 2dWBFbnNGyn | 7        | [FMQ] fair:mq:Device running...  |             |     |         |         |           |         |
| I     |       | 10:32:35.419 | cru-ctp1 | FLP    | datacist/stfsender     | 2dWBFbnNGyn | 7        | [FMQ] [OCC] Transition response: RUNNING ok: 1   |             |     |         |         |           |         |
| I     |       | 10:32:35.419 | cru-ctp1 | FLP    | datacist/stfsender     | 2dWBFbnNGyn | 7        | Entering running state. RunNumber: 7   |             |     |         |         |           |         |
| I     |       | 10:32:35.419 | cru-ctp1 | FLP    | datacist/stfsender     | 2dWBFbnNGyn | 7        | [FMQ] [OCC] Serialized JsonMessage: {"trigger":0,"state":"RUNNING","transitionEvent":"RUN","ok":true}  |             |     |         |         |           |         |
| I     |       | 10:32:35.420 | cru-ctp1 | FLP    | datacist/stfbuilder    | 2dWBFbnNGyn | 7        | [FMQ] READY ---> RUNNING   |             |     |         |         |           |         |
| I     |       | 10:32:35.420 | cru-ctp1 | FLP    | datacist/stfbuilder    | 2dWBFbnNGyn | 7        | [FMQ] [OCC] Transition response: RUNNING ok: 1   |             |     |         |         |           |         |
| I     |       | 10:32:35.420 | cru-ctp1 | FLP    | datacist/stfbuilder    | 2dWBFbnNGyn | 7        | [FMQ] fair:mq:Device running...  |             |     |         |         |           |         |
| I     |       | 10:32:35.420 | cru-ctp1 | FLP    | datacist/stfbuilder    | 2dWBFbnNGyn | 7        | [FMQ] [OCC] Serialized JsonMessage: {"trigger":0,"state":"RUNNING","transitionEvent":"RUN","ok":true}  |             |     |         |         |           |         |
| I     |       | 10:32:35.420 | cru-ctp1 | FLP    | datacist/stfbuilder    | 2dWBFbnNGyn | 7        | Entering running state. RunNumber: 7   |             |     |         |         |           |         |
| I     | 11    | 10:32:35.496 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Run number 7   |             |     |         |         |           |         |
| I     | 8     | 10:32:35.496 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Readout executing START  |             |     |         |         |           |         |
| I     | 11    | 10:32:35.496 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Starting aggregator  |             |     |         |         |           |         |
| I     | 11    | 10:32:35.496 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Aggregator slice timeout = 1.00 seconds  |             |     |         |         |           |         |
| I     | 11    | 10:32:35.496 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Aggregator subtimeframe timeout = 0.50 seconds   |             |     |         |         |           |         |
| I     | 11    | 10:32:35.496 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Starting stats clock   |             |     |         |         |           |         |
| I     | 11    | 10:32:35.496 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Starting readout equipments  |             |     |         |         |           |         |
| I     | 11    | 10:32:35.497 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Running  |             |     |         |         |           |         |
| I     | 11    | 10:32:35.497 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Equipment equipment player 1: first HB orbit = 0   |             |     |         |         |           |         |
| I     | 6     | 10:32:35.497 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Readout completed START  |             |     |         |         |           |         |
| I     | 11    | 10:32:35.497 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Equipment equipment player 2: first HB orbit = 0   |             |     |         |         |           |         |
| I     | 11    | 10:32:35.497 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | Entering main loop   |             |     |         |         |           |         |
| I     | 11    | 10:32:35.498 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | File equipment-player-2 replay - 1st loop completed  |             |     |         |         |           |         |
| I     | 1     | 10:32:35.499 | cru-ctp1 | ECS    | core/env               | 2dWBFbnNGyn | 7        | run started  |             |     |         |         |           |         |
| I     | 11    | 10:32:35.501 | cru-ctp1 | FLP    | readout                | 2dWBFbnNGyn | 7        | File equipment-player-1 replay - 1st loop completed  |             |     |         |         |           |         |
| E     | 1     | 10:32:35.507 | cru-ctp1 | ECS    | core/bookkeepingcli... | 2dWBFbnNGyn | 7        | Bookkeeping API RunServiceClient: Update error call="RunServiceClient.Update" error="rpc error: code = Unavailable desc = connection error: desc = "transport: Error while dialing dial ...  |             |     |         |         |           |         |
| I     | 1     | 10:32:35.507 | cru-ctp1 | ECS    | core/env               | 2dWBFbnNGyn | 7        | START_ACTIVITY transition complete   |             |     |         |         |           |         |
| W     |       | 10:32:36.013 | cru-ctp1 | FLP    | datacist/stfbuilder    | 2dWBFbnNGyn | 7        | READOUT INTERFACE: First orbit in TF is set to 0.  |             |     |         |         |           |         |

# Outlook

- Testing of the reading raw file created in the lab with TST detector is ongoing
- Problem - can not see any QC messages nor any published histograms
- Barth pointed out that .json file is missing - fixed, but situation ihas not changed
- Ping Pippo to understand where we are stuck in:

```
o2-dpl-raw-proxy -b --session default --dataspec 'x:CTP/RAWDATA;dd:FLP/DISTSUBTIMEFRAME/0' --readout-  
proxy '--channel-config "name=readout-proxy,type=pull,method=connect,address=ipc:///tmp/stf-builder-dpl-  
pipe-0,transport=shmem,rateLogging=10"' | o2-ctp-reco-workflow -b --configKeyValues  
'NameConf.mCCDBServer=http://127.0.0.1:8084;' | o2-qc -b --config consul-json://{{ consul_endpoint }}/o2/  
components/qc/ANY/any/ctp-raw-qc | o2-dpl-output-proxy --environment DPL_OUTPUT_PROXY_ORDERED=1 -b --  
session default --dataspec 'x:CTP/RAWDATA;dd:FLP/DISTSUBTIMEFRAME/0' --dpl-output-proxy '--channel-  
config "name=downstream,type=push,method=bind,address=ipc:///tmp/stf-  
pipe-0,rateLogging=10,transport=shmem"'
```

# Backup