

02 AT – 12/11/2025

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# Hyperloop: from introduction to testing

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Luca Micheletti (INFN Torino)



- ❑ Hyperloop is the train system for Run3, replacing Run2 LEGO train

 Hyperloop page: <https://alimonitor.cern.ch/hyperloop/>

 Documentation page: <https://aliceo2group.github.io/analysis-framework/docs/hyperloop/>

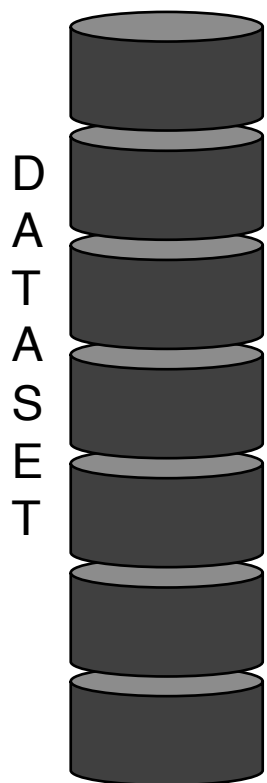
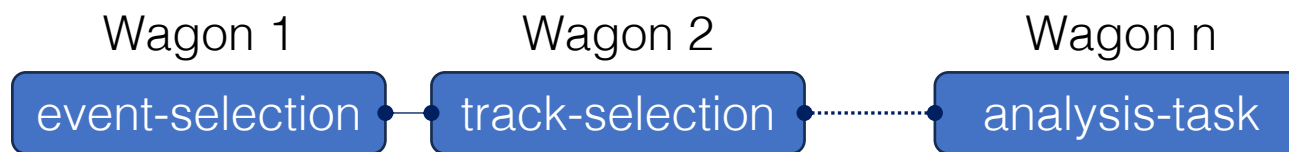
 Mattermost channel: <https://mattermost.web.cern.ch/alice/channels/o2-hyperloop-operation>

- ❑ Hypeloop:

- is fully integrated with O<sup>2</sup> (configurables, default settings taken from latest versions)
- allows to use Run3 data and Run2 converted datasets
- allows to create **derived datasets** and analyze them
- allows to recover configurations, datasets, software versions ⇒ **reproducibility!**
- produces all the information to **reproduce the train locally**

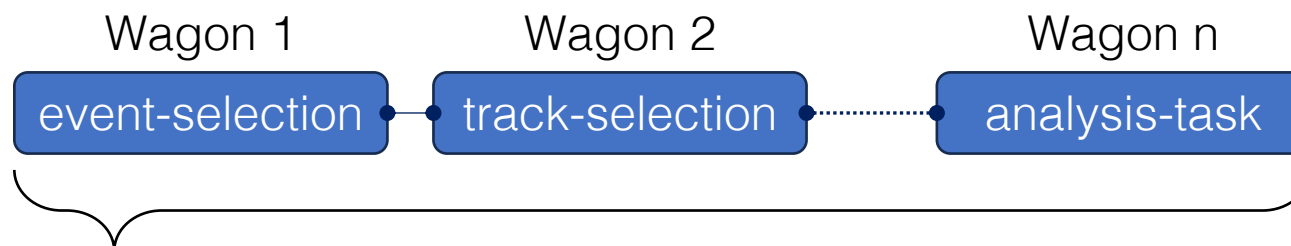
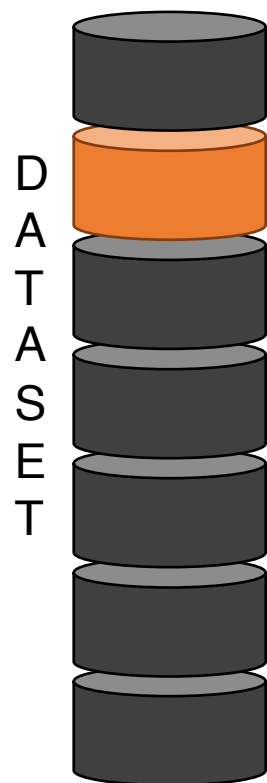
# The Hyperloop train system

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# The Hyperloop train system

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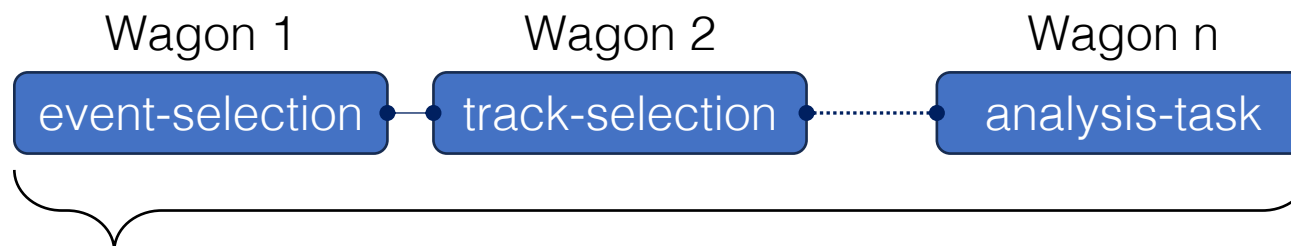
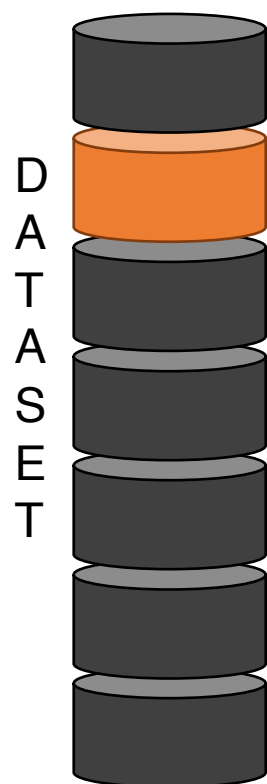


The analysis  
is tested on a  
**small fraction**  
of the dataset

! Time limit: 300s

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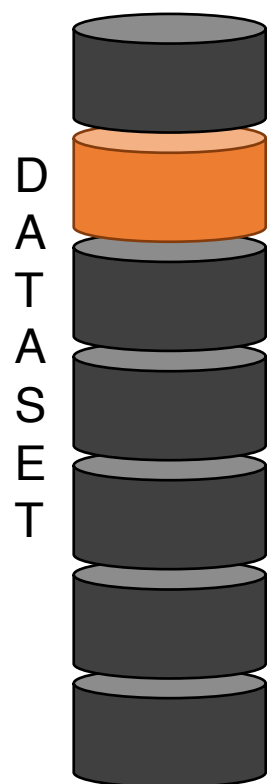


The analysis  
is tested on a  
**small fraction**  
of the dataset

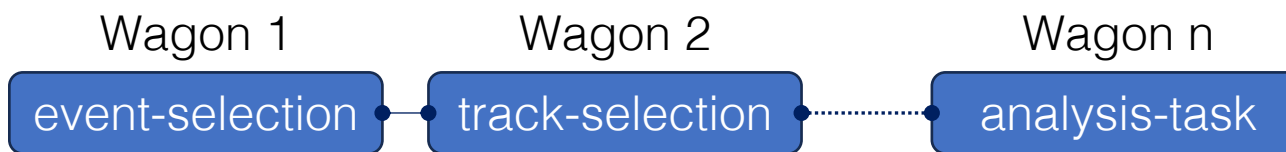
! Time limit: 300s

# The Hyperloop train system

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D  
A  
T  
A  
S  
E  
T

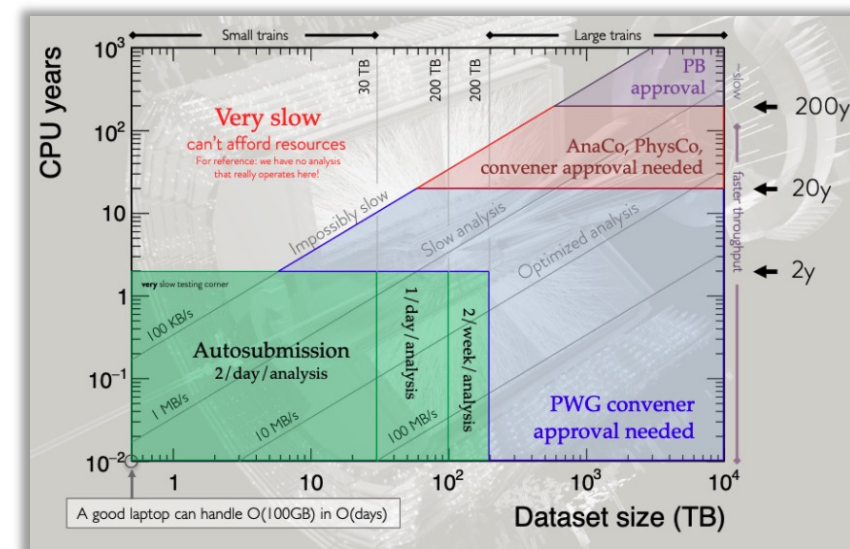


The analysis is tested on a small fraction of the dataset

! Time limit: 300s

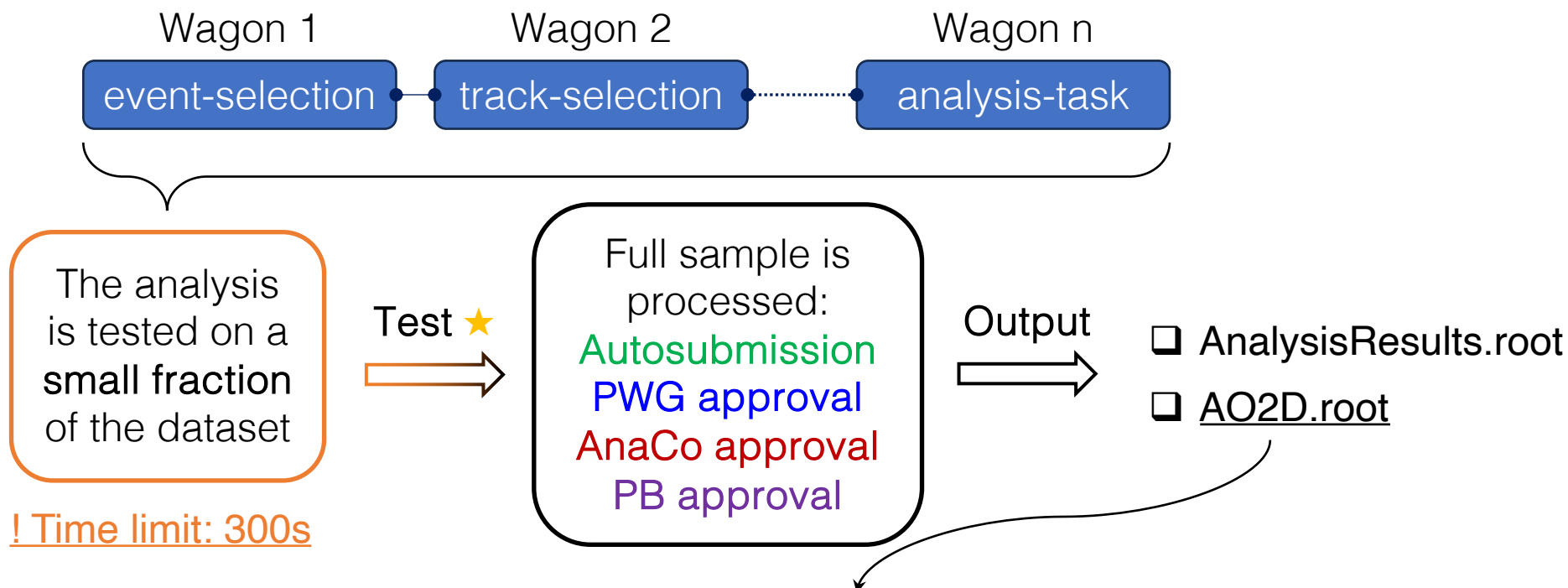
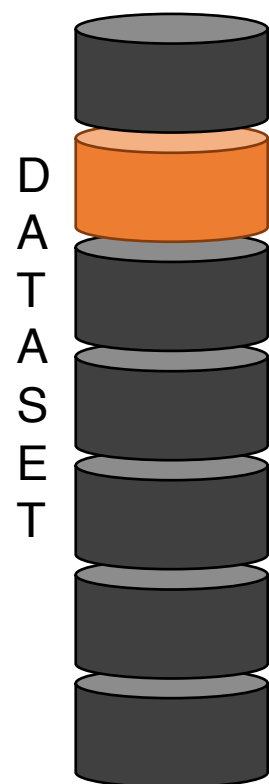
Test ★  
→

Full sample is processed:  
Autosubmission  
PWG approval  
AnaCo approval  
PB approval



# The Hyperloop train system

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**Reduced dataset:** it can be processed on Hyperloop after requiring the creation of the dataset to the train operators via the **Mattermost** channel

Wagon settings Configuration 1 Derived data 12 Test Statistics Grid Statistics

Latest change by *lmichele* at 04/11/25, 18:56 CET

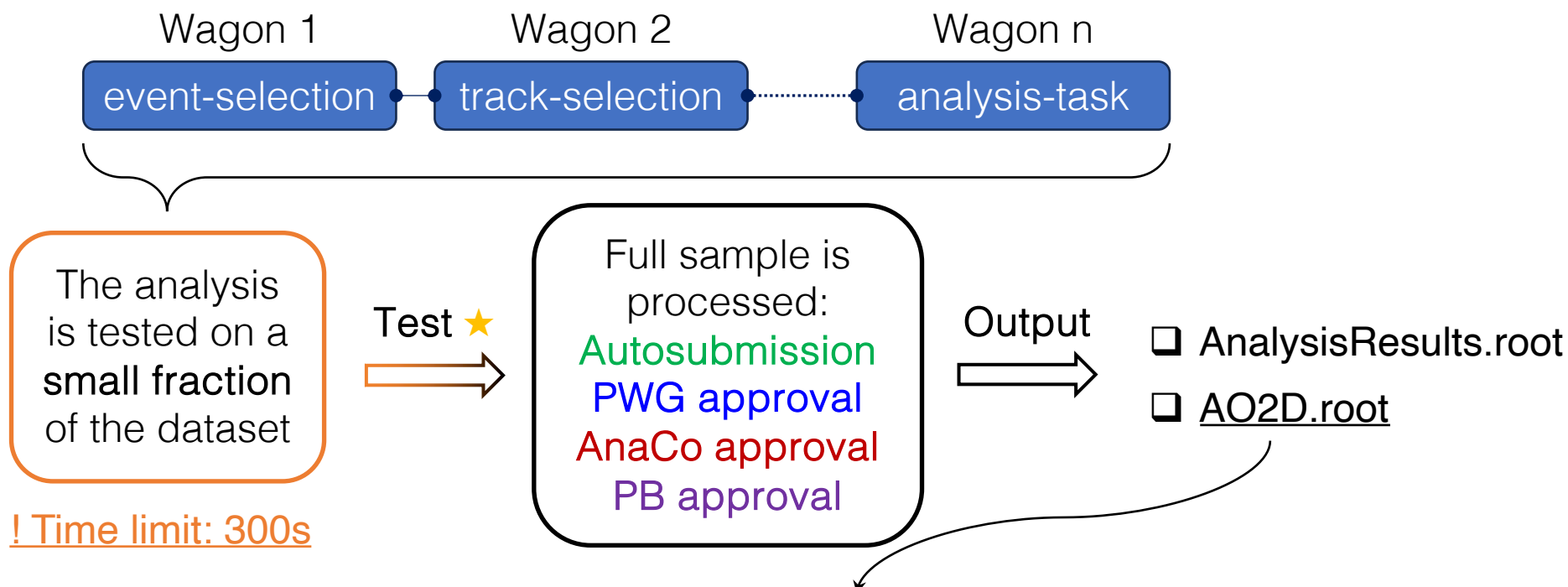
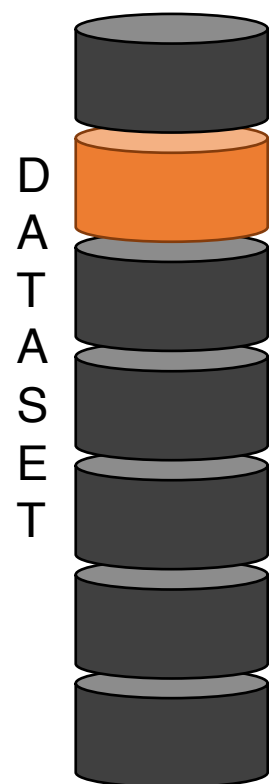
Sync Max DF size: 100000000 Max derived file size: 0 Ready for slim derived data



Only enable tables which should be saved into an AO2D.root output file. This requires a derived data train which, unless 'Ready for slim' is checked, does not submit automatically and may need additional approval (click ? for more details). If you just need the information in these tables in a subsequent wagon in the same train, there is no need to enable the tables.

Store	Origin	Binding	Description	Version
<input checked="" type="checkbox"/>	AOD	ReducedEventsVtxCov	REVTXCOV	0
<input type="checkbox"/>	AOD	ReducedTracks	REDUCEDTRACK	0

# The Hyperloop train system

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12/11/2025  
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-  **Reduced dataset:** it can be processed on Hyperloop after requiring the creation of the dataset to the train operators via the **Mattermost** channel
-  **Slim dataset:** it can be processed on Hyperloop if the output size is small and it is not necessary to ask the operators to submit via the **Mattermost** channel

Wagon settings

Configuration **1**

Derived data **12**

Test Statistics

Grid Statistics

Latest change by *lmichele*  
at 29/09/25, 09:46 CEST



Sync

Max DF size: 100000000

Max derived file size: 0

☐ Ready for slim derived data



## Hyperloop analysis window

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DQ heavy-ions: streaming campaign

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Analizers: bpaul,dhthakur,dmallick,lmichele,rcerri,sgaretti

JIRA : PWGDQ-94

Package: O2Physics::daily-20251110-0000-1

☒ or newer tags

☐ Future tag based on pull request

[Learn more](#)

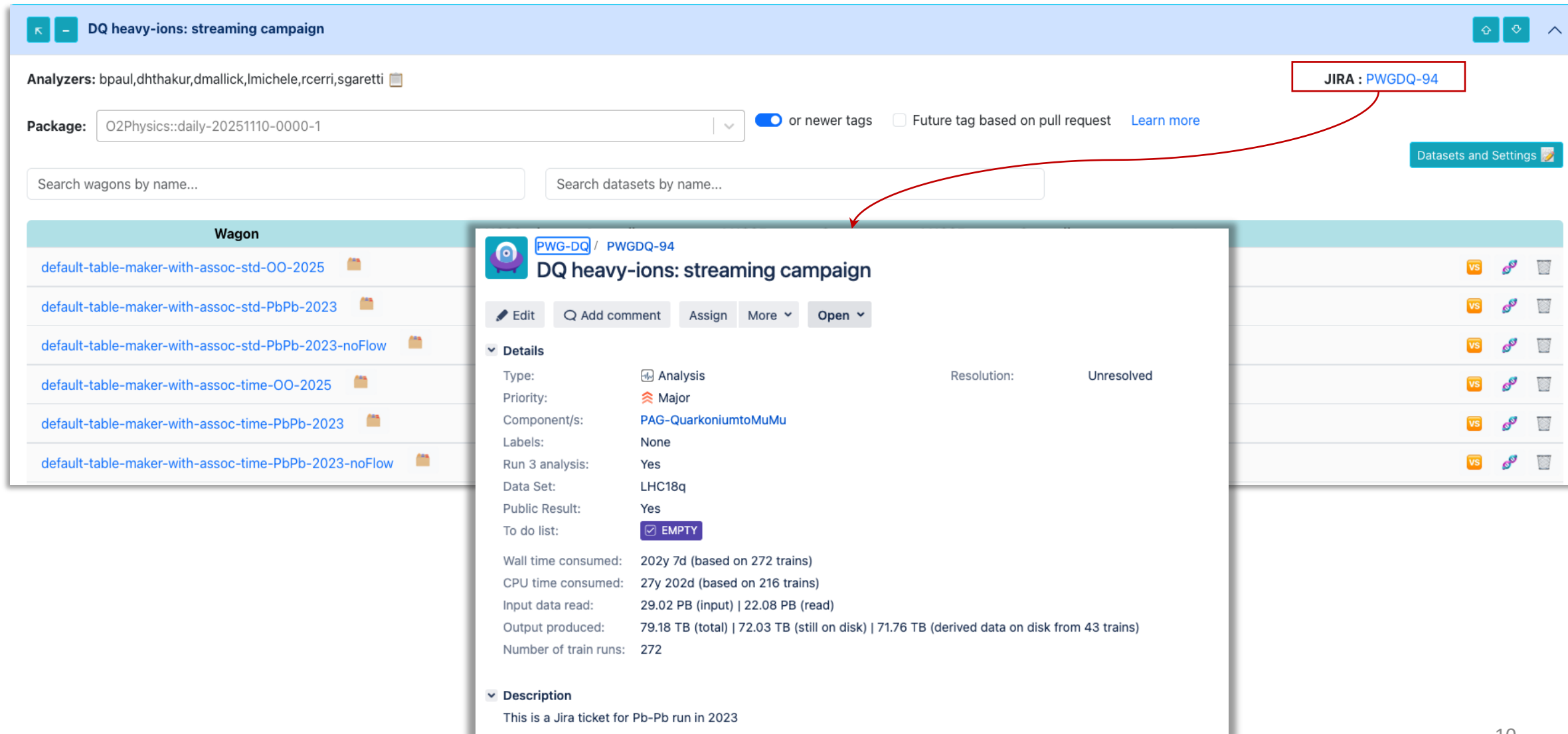
Search wagons by name...

Search datasets by name...

Datasets and Settings

Wagon	LHC23zzh_pass4_small	LHC25ae_pass2	LHC25ae_pass2_small	Last run	
default-table-maker-with-assoc-std-OO-2025	✗	✗	✗	540791	VS
default-table-maker-with-assoc-std-PbPb-2023	✗	✗	✗	547614	VS
default-table-maker-with-assoc-std-PbPb-2023-noFlow	✗	✗	✗	548440	VS
default-table-maker-with-assoc-time-OO-2025	✗	✗	✗	540792	VS
default-table-maker-with-assoc-time-PbPb-2023	✗	✗	✗		VS
default-table-maker-with-assoc-time-PbPb-2023-noFlow	✗	✗	✗	548438	VS

## Hyperloop analysis window



The screenshot displays the 'Hyperloop analysis window' for a campaign named 'DQ heavy-ions: streaming campaign'. The interface includes a top navigation bar with a back arrow, a minus sign, and the campaign name. Below this, the 'Analyzers' section lists 'bpaul,dhthakur,dmалlick,lmichele,rcerri,sgaretti'. The 'Package' dropdown is set to 'O2Physics::daily-20251110-0000-1'. There are toggle switches for 'or newer tags' (checked) and 'Future tag based on pull request' (unchecked), with a 'Learn more' link. Search bars for 'wagons' and 'datasets' are present. A 'Datasets and Settings' button is in the top right. A red box highlights 'JIRA : PWGDQ-94' with an arrow pointing to the 'PWGDQ-94' tag in the campaign title of the detailed view. The left sidebar shows a list of 'Wagon' items, including 'default-table-maker-with-assoc-std-OO-2025' and 'default-table-maker-with-assoc-std-PbPb-2023'. The main panel shows the detailed view for 'PWGDQ-94 / PWGDQ-94' under the campaign name. It includes action buttons: 'Edit', 'Add comment', 'Assign', 'More', and 'Open'. The 'Details' section lists: Type: Analysis, Priority: Major, Component/s: PAG-QuarkoniumtoMuMu, Labels: None, Run 3 analysis: Yes, Data Set: LHC18q, Public Result: Yes, To do list: [x] EMPTY, Wall time consumed: 202y 7d (based on 272 trains), CPU time consumed: 27y 202d (based on 216 trains), Input data read: 29.02 PB (input) | 22.08 PB (read), Output produced: 79.18 TB (total) | 72.03 TB (still on disk) | 71.76 TB (derived data on disk from 43 trains), and Number of train runs: 272. The 'Resolution' is 'Unresolved'. The 'Description' section states: 'This is a Jira ticket for Pb-Pb run in 2023'. The right sidebar shows a list of 'VS' items with icons and trash can icons.

**DQ heavy-ions: streaming campaign**

Analizers: bpaul,dhthakur,dmалlick,lmichele,rcerri,sgaretti

Package: O2Physics::daily-20251110-0000-1

or newer tags ☒ Future tag based on pull request ☐ [Learn more](#)

Search wagons by name... Search datasets by name...

**Wagon**

- default-table-maker-with-assoc-std-OO-2025
- default-table-maker-with-assoc-std-PbPb-2023
- default-table-maker-with-assoc-std-PbPb-2023-noFlow
- default-table-maker-with-assoc-time-OO-2025
- default-table-maker-with-assoc-time-PbPb-2023
- default-table-maker-with-assoc-time-PbPb-2023-noFlow

**PWG-DQ / PWGDQ-94**

**DQ heavy-ions: streaming campaign**

Edit Add comment Assign More Open

**Details**

Type: Analysis Resolution: Unresolved

Priority: Major

Component/s: PAG-QuarkoniumtoMuMu

Labels: None

Run 3 analysis: Yes

Data Set: LHC18q

Public Result: Yes

To do list: [x] EMPTY

Wall time consumed: 202y 7d (based on 272 trains)

CPU time consumed: 27y 202d (based on 216 trains)

Input data read: 29.02 PB (input) | 22.08 PB (read)

Output produced: 79.18 TB (total) | 72.03 TB (still on disk) | 71.76 TB (derived data on disk from 43 trains)

Number of train runs: 272

**Description**

This is a Jira ticket for Pb-Pb run in 2023

# Hyperloop analysis window

⏪ - **DQ heavy-ions: streaming campaign** ↕ ↕ ↗

**Analyzers:** bpaul,dhthakur,dmallick,lmichele,rcerri,sgaretti 📁 JIRA : PWGDQ-94


**Package:**  | ▾ ☒ or newer tags ☐ Future tag based on pull request [Learn more](#)

Datasets and Settings 📄


Wagon	LHC23zzh_pass4_small	LHC25ae_pass2	LHC25ae_pass2_small	Last run	
default-table-maker-with-assoc-std-OO-2025 📁	✖	✖	✖	540791	VS 🔍 🗑️
default-table-maker-with-assoc-std-PbPb-2023 📁	✖	✖	✖	547614	VS 🔍 🗑️
default-table-maker-with-assoc-std-PbPb-2023-noFlow 📁	✖	✖	✖	548440	VS 🔍 🗑️
default-table-maker-with-assoc-time-OO-2025 📁	✖	✖	✖	540792	VS 🔍 🗑️
default-table-maker-with-assoc-time-PbPb-2023 📁	✖	✖	✖		VS 🔍 🗑️
default-table-maker-with-assoc-time-PbPb-2023-noFlow 📁	✖	✖	✖	548438	VS 🔍 🗑️

## Hyperloop analysis window


DQ heavy-ions: streaming campaign

























Analyzers: bpaul,dhthakur,dmallick,lmichele,rcerri,sgaretti 

JIRA : [PWGDQ-94](#)

Package:  

☒ or newer tags ☐ Future tag based on pull request [Learn more](#)

Datasets and Settings 

Wagon	LHC23zzh_pass4_small	LHC25ae_pass2	LHC25ae_pass2_small	Last run	
<a href="#">default-table-maker-with-assoc-std-OO-2025</a> 	✗	✗	✗	540791	  
<a href="#">default-table-maker-with-assoc-std-PbPb-2023</a> 	✗	✗	✗	547614	  
<a href="#">default-table-maker-with-assoc-std-PbPb-2023-noFlow</a> 	✗	✗	✗	548440	  
<a href="#">default-table-maker-with-assoc-time-OO-2025</a> 	✗	✗	✗	540792	  
<a href="#">default-table-maker-with-assoc-time-PbPb-2023</a> 	✗	✗	✗		  
<a href="#">default-table-maker-with-assoc-time-PbPb-2023-noFlow</a> 	✗	✗	✗	548438	  

- It is possible to navigate across the different software tags (remember to sync your configuration!)

- It is possible to navigate across the **different software tags** (remember to sync your configuration!)
- If you are waiting for your **PR** to be merged you can select the tag according to it

## Hyperloop analysis window

DQ heavy-ions: streaming campaign

Analyzers: bpaul,dhthakur,dmалlick,lmichele,rcerri,sgaretti

JIRA : PWGDQ-94

Package: O2Physics::daily-20251110-0000-1

☒ or newer tags ☐ Future tag based on pull request [Learn more](#)

Search wagons by name...

Search datasets by name...

Wagon	LHC23zzh_pass4_small	LHC25ae_pass2	LHC25ae_pass2_small	Last run	
<a href="#">default-table-maker-with-assoc-std-OO-2025</a>	✗	✗	✗	540791	<a href="#">VS</a> <a href="#">Info</a> <a href="#">Delete</a>
<a href="#">default-table-maker-with-assoc-std-PbPb-2023</a>	✗	✗	✗	547614	<a href="#">VS</a> <a href="#">Info</a> <a href="#">Delete</a>
<a href="#">default-table-maker-with-assoc-std-PbPb-2023-noFlow</a>	✗	✗	✗	548440	<a href="#">VS</a> <a href="#">Info</a> <a href="#">Delete</a>
<a href="#">default-table-maker-with-assoc-time-OO-2025</a>				2	<a href="#">VS</a> <a href="#">Info</a> <a href="#">Delete</a>
<a href="#">default-table-maker-with-assoc-time-PbPb-2023</a>				8	<a href="#">VS</a> <a href="#">Info</a> <a href="#">Delete</a>
<a href="#">default-table-maker-with-assoc-time-PbPb-2023-noFlow</a>					<a href="#">VS</a> <a href="#">Info</a> <a href="#">Delete</a>

Datasets and Settings

Receive emails if test wagon fails

None

Enabled datasets in DQ heavy-ions: streaming campaign

LHC23zzh\_pass4\_small ✗

LHC25ae\_pass2 ✗

LHC25ae\_pass2\_small ✗


Enable dataset

[All datasets](#)

☐ Data ☐ MC ☐ MCGEN

Close

Wagon	LHC23zzh_pass4_small
default-table-maker-with-assoc-std-OO-2025 	✗
default-table-maker-with-assoc-std-PbPb-2023 	✗
default-table-maker-with-assoc-std-PbPb-2023-noFlow 	✓ 
default-table-maker-with-assoc-time-OO-2025 	✗
default-table-maker-with-assoc-time-PbPb-2023 	✗
default-table-maker-with-assoc-time-PbPb-2023-noFlow 	✗

Wagon	LHC23zzh_pass4_small	
<a href="#">default-table-maker-with-assoc-std-OO-2025</a>		✗
<a href="#">default-table-maker-with-assoc-std-PbPb-2023</a>		✗
<a href="#">default-table-maker-with-assoc-std-PbPb-2023-noFlow</a>		✓ 
<a href="#">default-table-maker-with-assoc-time-OO-2025</a>		✗
<a href="#">default-table-maker-with-assoc-time-PbPb-2023</a>		✗
<a href="#">default-table-maker-with-assoc-time-PbPb-2023-noFlow</a>		✗

General Derived Data Test

Package tag

O2Physics::daily-20251110-0000-1



Dataset

LHC23zzh\_pass4\_small

Enabled by

lmichele

Test status

Done  (output) (browse) [Speedscope](#) 

Start Time

10 November 2025 at 14:05:45 CET

End Time

10 November 2025 at 14:11:28 CET

Scheduled

None

Composition



Wagon	LHC23zzh_pass4_small
<a href="#">default-table-maker-with-assoc-std-OO-2025</a>	
<a href="#">default-table-maker-with-assoc-std-PbPb-2023</a>	
<a href="#">default-table-maker-with-assoc-std-PbPb-2023-noFlow</a>	 
<a href="#">default-table-maker-with-assoc-time-OO-2025</a>	
<a href="#">default-table-maker-with-assoc-time-PbPb-2023</a>	
<a href="#">default-table-maker-with-assoc-time-PbPb-2023-noFlow</a>	

General Derived Data Test

Package tag

O2Physics::daily-20251110-0000-1


Dataset

LHC23zzh\_pass4\_small

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lmichele

Test status

Done  (output) (browse) Speedscope

Start Time

10 November 2025 at 14:05:45 CET

End Time

10 November 2025 at 14:11:28 CET

Scheduled

None

Composition

- ❑ The output of the test contains all the information to perform locally the same analysis
- ❑ Download all the **files** locally (or on LXPLUS)

**Filename**

- A02D.root
- AnalysisResults.root
- OutputDirector.json
- configuration.json
- download.log
- dpl-config.json
- env.sh
- full\_config.json
- input\_data.txt
- merge.log
- performanceMetrics.json
- performanceMetrics\_processed.json
- profile.linux-perf.txt
- status.json
- stderr.log
- stdout.log
- wn.xml

- **configuration.json**: has the setting of all the analysis wagons
- **input\_data.txt**: has file list processed
- **stdout.log**: has all the information of the processing (crucial to reproduce)

# How to reproduce trains locally

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12/11/2025  
O2AT



```
Salva Copia Comprimi tutto Espandi tutto Filtra JSON
▼ table-maker:
  cfgAddTrackHistogram:      ""
  processPbPb:                "0"
  processPbPbBarrelOnlyNoTOF: "0"
  cddb-no-later-than:        "1760669095946"
  cfgRefitGlobalMuon:        "0"
  processPPRealignedMuonOnly: "0"
  cfgIsRun2:                  "0"
  cfgIsforMaps:               "0"
  processPPWithFilterMuonOnly: "0"
  processPPWithFilterBarrelOnly: "0"
  processPbPbWithFilterBarrelOnly: "0"
  cfgEventCuts:               "eventNoTFBorder"
  cfgKeepBestMatch:           "0"
  cfgUseML:                   "0"
  cddb-path-tpc:               "Users/z/zhxiong/TPCPID/PostCalib"
  processOnlyBCs:              "0"
  processPPMuonMFTWithMultsExtra: "0"
  cfgBcTolerance:              "100"
  cfgTPCpostCalib:             "0"
  cfgTPCpostCalibUseInterpolation: "1"
```

configuration.json:

- can be downloaded or copied directly via the buttons in the browser

# How to reproduce trains locally

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12/11/2025  
O2AT



```
Salva Copia Comprimi tutto Espandi tutto Filtra JSON
▼ table-maker:
  cfgAddTrackHistogram: ""
  processPbPb: "0"
  processPbPbBarrelOnlyNoTOF: "0"
  ccdb-no-later-than: "1760669095946"
  cfgRefitGlobalMuon: "0"
  processPPRealignedMuonOnly: "0"
  cfgIsRun2: "0"
  cfgIsforMaps: "0"
  processPPWithFilterMuonOnly: "0"
  processPPWithFilterBarrelOnly: "0"
  processPbPbWithFilterBarrelOnly: "0"
  cfgEventCuts: "eventNoTFBorder"
  cfgKeepBestMatch: "0"
  cfgUseML: "0"
  ccdb-path-tpc: "Users/z/zhxiong/TPCPID/PostCalib"
  processOnlyBCs: "0"
  processPPMuonMFTWithMultsExtra: "0"
  cfgBcTolerance: "100"
  cfgTPCpostCalib: "0"
  cfgTPCpostCalibUseInterpolation: "1"
```

## configuration.json:

- can be downloaded or copied directly via the buttons in the browser

## input\_data.txt:

- cannot be used locally because the paths are for a directory not accessible for the user
- The user can:
  - download the AO2D locally
  - put the alien path (alien:///alice/data/...)

```
file:///home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141356736_tf0000167053_epn023/011/A02D.root
file:///home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141407392_tf0000168636_epn339/012/A02D.root
file:///home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142440640_tf0000200925_epn142/006/A02D.root
file:///home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142526048_tf0000203594_epn299/009/A02D.root
file:///home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142593120_tf0000205690_epn099/012/A02D.root
file:///home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143697152_tf0000240191_epn043/001/A02D.root
file:///home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142510208_tf0000203099_epn181/007/A02D.root
file:///home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143621120_tf0000237815_epn266/003/A02D.root
```

# How to reproduce trains locally

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O2AT



```
PACKAGES = V0_ALICE@02Physics::daily-20251110-0000-1
```

Acquiring lock and downloading input files from /alice/data/2023/LHC23zzh/544122/apass4/0420 at Mon Nov 10 02:05:48 PM CET 2025  
Acquired lock and started downloading at Mon Nov 10 02:05:48 PM CET 2025  
Finished downloading at Mon Nov 10 02:05:55 PM CET 2025

This job will run over the following files (note that not all of them may be processed because the test is gracefully stopped after a few minutes):  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0141356736\_tf0000167053\_epn023/011/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0141407392\_tf0000168636\_epn339/012/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142440640\_tf0000200925\_epn142/006/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142526048\_tf0000203594\_epn299/009/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142593120\_tf0000205690\_epn099/012/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0143697152\_tf0000240191\_epn043/001/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142510208\_tf0000203099\_epn181/007/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0143621120\_tf0000237815\_epn266/003/A02D.root

You can directly access these files with the following URLs (while they are cached):

http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0141356736\_tf0000167053\_epn023/011/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0141407392\_tf0000168636\_epn339/012/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142440640\_tf0000200925\_epn142/006/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142526048\_tf0000203594\_epn299/009/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142593120\_tf0000205690\_epn099/012/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0143697152\_tf0000240191\_epn043/001/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142510208\_tf0000203099\_epn181/007/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0143621120\_tf0000237815\_epn266/003/A02D.root

The corresponding AliEn paths are:

```
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141356736_tf0000167053_epn023/011/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141407392_tf0000168636_epn339/012/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142440640_tf0000200925_epn142/006/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142526048_tf0000203594_epn299/009/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142593120_tf0000205690_epn099/012/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143697152_tf0000240191_epn043/001/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142510208_tf0000203099_epn181/007/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143621120_tf0000237815_epn266/003/A02D.root
```

O2 job script starts at Mon Nov 10 02:05:55 PM CET 2025

No tf.limit in conf; using default TIMEFRAMES=2

O2 is taken from: /cvmfs/alice.cern.ch/el9-x86\_64/Packages/02/daily-20251110-0000-1

O2Physics is taken from: /cvmfs/alice.cern.ch/el9-x86\_64/Packages/02Physics/daily-20251110-0000-1

Running on 1 cores and configuring with shared memory 7500000000, rate limit 209715200, readers 1

Generating O2 command. Adding the following options:

Input files: --aod-file @input\_data.txt

Reader/Spawner configuration: --readers 1

Output configuration: --aod-writer-json OutputDirector.json

Memory options: --aod-memory-rate-limit 209715200 --shm-segment-size 7500000000

Time limit: --time-limit 300

Session: --session 551817

Limiting throughput to: 1000 MB/s

Monitoring: --resources-monitoring 5 --resources-monitoring-dump-interval 600

Benchmarking prefix: perf record -F 99 -g --call-graph dwarf --user-callchains

Global options (given once): --aod-file @input\_data.txt --aod-writer-json OutputDirector.json --readers 1 --aod-memory-rate-limit 209715200 --shm-segment-size 7500000000 --time-limit 300 --resources-monitoring 5 --resources-monitoring-dump-interval 600 --aod-max-io-rate 1000

Workflow options (given for each workflow): -b --configuration json://configuration.json --session 551817

Adding o2-analysis-dq-table-maker-with-assoc

Adding o2-analysis-fwtrackextension

Adding o2-analysis-tracks-extra-v002-converter

Adding o2-analysis-fwtrack-to-collision-associator

Adding o2-analysis-multcenttable

Adding o2-analysis-event-selection-service

The following O2 command will be executed:

```
o2-analysis-dq-table-maker-with-assoc -b --configuration json://configuration.json --session 551817 | o2-analysis-fwtrackextension -b --configuration json://configuration.json --session 551817 | o2-analysis-tracks-extra-v002-converter -b --configuration json://configuration.json --session 551817 | o2-analysis-fwtrack-to-collision-associator -b --configuration json://configuration.json --session 551817 | o2-analysis-multcenttable -b --configuration json://configuration.json --session 551817 | perf record -F 99 -g --call-graph dwarf --user-callchains o2-analysis-event-selection-service -b --configuration json://configuration.json --session 551817 --aod-file @input_data.txt --aod-writer-json OutputDirector.json --readers 1 --aod-memory-rate-limit 209715200 --shm-segment-size 7500000000 --time-limit 300 --resources-monitoring 5 --resources-monitoring-dump-interval 600 --aod-max-io-rate 1000
```

However, if for local debugging you want to run the same workflow, you can achieve this with the following reduced command line:

```
o2-analysis-dq-table-maker-with-assoc -b --configuration json://configuration.json | o2-analysis-fwtrackextension -b --configuration json://configuration.json | o2-analysis-tracks-extra-v002-converter -b --configuration json://configuration.json | o2-analysis-fwtrack-to-collision-associator -b --configuration json://configuration.json | o2-analysis-multcenttable -b --configuration json://configuration.json | o2-analysis-event-selection-service -b --configuration json://configuration.json --aod-file @input_data.txt --aod-writer-json OutputDirector.json
```

## configuration.json:

- can be downloaded or copied directly via the buttons in the browser

## input\_data.txt:

- cannot be used locally because the paths are for a directory not accessible for the user
- The user can:
  - download the AO2D locally
  - put the alien path (alien:///alice/data/...)

## stdout.log:

- crucial for debugging the errors!



# How to reproduce trains locally

Luca Micheletti  
12/11/2025  
O2AT



```
PACKAGES = V0_ALICE@O2Physics::daily-20251110-0000-1
```

Acquiring lock and downloading input files from /alice/data/2023/LHC23zzh/544122/apass4/0420 at Mon Nov 10 02:05:48 PM CET 2025  
Acquired lock and started downloading at Mon Nov 10 02:05:48 PM CET 2025  
Finished downloading at Mon Nov 10 02:05:55 PM CET 2025

This job will run over the following files (note that not all of them may be processed because the test is gracefully stopped after a few minutes):  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0141356736\_tf0000167053\_epn023/011/A020.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0141407392\_tf0000168636\_epn339/012/A020.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142440640\_tf0000200925\_epn142/006/A020.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142526048\_tf0000203594\_epn299/009/A020.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142593120\_tf0000205690\_epn099/012/A020.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0143697152\_tf0000240191\_epn043/001/A020.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142510208\_tf0000203099\_epn181/007/A020.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0143621120\_tf0000237815\_epn266/003/A020.root

You can directly access these files with the following URLs (while they are cached):

```
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141356736_tf0000167053_epn023/011/A020.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141407392_tf0000168636_epn339/012/A020.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142440640_tf0000200925_epn142/006/A020.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142526048_tf0000203594_epn299/009/A020.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142593120_tf0000205690_epn099/012/A020.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143697152_tf0000240191_epn043/001/A020.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142510208_tf0000203099_epn181/007/A020.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143621120_tf0000237815_epn266/003/A020.root
```

The corresponding AliEn paths are:

```
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141356736_tf0000167053_epn023/011/A020.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141407392_tf0000168636_epn339/012/A020.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142440640_tf0000200925_epn142/006/A020.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142526048_tf0000203594_epn299/009/A020.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142593120_tf0000205690_epn099/012/A020.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143697152_tf0000240191_epn043/001/A020.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142510208_tf0000203099_epn181/007/A020.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143621120_tf0000237815_epn266/003/A020.root
```

O2 job script starts at Mon Nov 10 02:05:55 PM CET 2025

No tf\_limit in config; using default TIMEFRAMES=2

O2 is taken from: /cvmfs/alice.cern.ch/el9-x86\_64/Packages/O2/daily-20251110-0000-1

O2Physics is taken from: /cvmfs/alice.cern.ch/el9-x86\_64/Packages/O2Physics/daily-20251110-0000-1

Running on 1 cores and configuring with shared memory 7500000000, rate limit 209715200, readers 1

Generating O2 command. Adding the following options:

Input files: --aod-file @input\_data.txt

Reader/Spawner configuration: --readers 1

Output configuration: --aod-writer-json OutputDirector.json

Memory options: --aod-memory-rate-limit 209715200 --shm-segment-size 7500000000

Time limit: --time-limit 300

Session: --session 551817

Limiting throughput to: 1000 MB/s

Monitoring: --resources-monitoring 5 --resources-monitoring-dump-interval 600

Benchmarking prefix: perf record -F 99 -g --call-graph dwarf --user-callchains

Global options (given once): --aod-file @input\_data.txt --aod-writer-json OutputDirector.json --readers 1 --aod-memory-rate-limit 209715200 --shm-segment-size 7500000000 --time-limit 300 --resources-monitoring 5 --resources-monitoring-dump-interval 600 --aod-max-io-rate 1000

Workflow options (given for each workflow): -b --configuration json://configuration.json --session 551817

Adding o2-analysis-dq-table-maker-with-assoc

Adding o2-analysis-fwtrackextension

Adding o2-analysis-tracks-extra-v002-converter

Adding o2-analysis-fwtrack-to-collision-associator

Adding o2-analysis-multcenttable

Adding o2-analysis-event-selection-service

The following O2 command will be executed:

```
o2-analysis-dq-table-maker-with-assoc -b --configuration json://configuration.json --session 551817 | o2-analysis-fwtrackextension -b --configuration json://configuration.json --session 551817 | o2-analysis-tracks-extra-v002-converter -b --configuration json://configuration.json --session 551817 | o2-analysis-fwtrack-to-collision-associator -b --configuration json://configuration.json --session 551817 | o2-analysis-multcenttable -b --configuration json://configuration.json --session 551817 | perf record -F 99 -g --call-graph dwarf --user-callchains o2-analysis-event-selection-service -b --configuration json://configuration.json --aod-file @input_data.txt --aod-writer-json OutputDirector.json --readers 1 --aod-memory-rate-limit 209715200 --shm-segment-size 7500000000 --time-limit 300 --resources-monitoring 5 --resources-monitoring-dump-interval 600 --aod-max-io-rate 1000
```

However, if for local debugging you want to run the same workflow, you can achieve this with the following reduced command line:

```
o2-analysis-dq-table-maker-with-assoc -b --configuration json://configuration.json | o2-analysis-fwtrackextension -b --configuration json://configuration.json | o2-analysis-tracks-extra-v002-converter -b --configuration json://configuration.json | o2-analysis-fwtrack-to-collision-associator -b --configuration json://configuration.json | o2-analysis-multcenttable -b --configuration json://configuration.json | o2-analysis-event-selection-service -b --configuration json://configuration.json --aod-file @input_data.txt --aod-writer-json OutputDirector.json
```

## Recipe to run locally

1. Copy the **list of files** in input\_data.txt
2. Download configuration.json
3. Load **O2Physics** and create a grid token
4. Run the **command** reported in the log

# How to reproduce trains locally

Luca Micheletti  
12/11/2025  
O2AT



```
PACKAGES = V0_ALICE@O2Physics::daily-20251110-0000-1
```

Acquiring lock and downloading input files from /alice/data/2023/LHC23zzh/544122/apass4/0420 at Mon Nov 10 02:05:48 PM CET 2025  
Acquired lock and started downloading at Mon Nov 10 02:05:48 PM CET 2025  
Finished downloading at Mon Nov 10 02:05:55 PM CET 2025

This job will run over the following files (note that not all of them may be processed because the test is gracefully stopped after a few minutes):  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0141356736\_tf0000167053\_epn023/011/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0141407392\_tf0000168636\_epn339/012/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142440640\_tf0000200925\_epn142/006/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142526048\_tf0000203594\_epn299/009/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142593120\_tf0000205690\_epn099/012/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0143697152\_tf0000240191\_epn043/001/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0142510208\_tf0000203099\_epn181/007/A02D.root  
/home/alitrain/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2\_ctf\_run00544122\_orbit0143621120\_tf0000237815\_epn266/003/A02D.root

You can directly access these files with the following URLs (while they are cached):

```
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141356736_tf0000167053_epn023/011/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141407392_tf0000168636_epn339/012/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142440640_tf0000200925_epn142/006/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142526048_tf0000203594_epn299/009/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142593120_tf0000205690_epn099/012/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143697152_tf0000240191_epn043/001/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142510208_tf0000203099_epn181/007/A02D.root  
http://alimonitor.cern.ch/train-workdir/testdata/LFN/alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143621120_tf0000237815_epn266/003/A02D.root
```

The corresponding AliEn paths are:

```
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141356736_tf0000167053_epn023/011/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0141407392_tf0000168636_epn339/012/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142440640_tf0000200925_epn142/006/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142526048_tf0000203594_epn299/009/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142593120_tf0000205690_epn099/012/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143697152_tf0000240191_epn043/001/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0142510208_tf0000203099_epn181/007/A02D.root  
alien:///alice/data/2023/LHC23zzh/544122/apass4/0420/o2_ctf_run00544122_orbit0143621120_tf0000237815_epn266/003/A02D.root
```

```
O2 job script starts at Mon Nov 10 02:05:55 PM CET 2025  
No tf_limit in config; using default TIMEFRAMES=2  
O2 is taken from: /cvmfs/alice.cern.ch/el9-x86_64/Packages/O2/daily-20251110-0000-1  
O2Physics is taken from: /cvmfs/alice.cern.ch/el9-x86_64/Packages  
Running on 1 cores and configuring with shared memory 7500000000,
```

```
Generating O2 command. Adding the following options:  
Input files: --aod-file @input_data.txt  
Reader/Spawner configuration: --readers 1  
Output configuration: --aod-writer-json OutputDirector.json  
Memory options: --aod-memory-rate-limit 209715200 --shm-segment-size 7500000000  
Time limit: --time-limit 300  
Session: --session 551817  
Limiting throughput to: 1000 MB/s  
Monitoring: --resources-monitoring 5 --resources-monitoring-dump-interval 600  
Benchmarking prefix: perf record -F 99 -g --call-graph dwarf --user-call
```

```
Global options (given once): --aod-file @input_data.txt --aod-writer-json OutputDirector.json --readers 1 --aod-memory-rate-limit 209715200 --shm-segment-size 7500000000 --time-limit 300 --resources-monitoring 5 --resources-monitoring-dump-interval 600 --aod-max-io-rate 1000  
Workflow options (given for each workflow): -b --configuration json://configuration.json --session 551817
```

```
Adding o2-analysis-dq-table-maker-with-assoc  
Adding o2-analysis-fwtrackextension  
Adding o2-analysis-tracks-extra-v002-converter  
Adding o2-analysis-fwtrack-to-collision-associator  
Adding o2-analysis-multcenttable  
Adding o2-analysis-event-selection-service
```

The following O2 command will be executed:

```
o2-analysis-dq-table-maker-with-assoc -b --configuration json://configuration.json --session 551817 | o2-analysis-fwtrackextension -b --configuration json://configuration.json --session 551817 | o2-analysis-tracks-extra-v002-converter -b --configuration json://configuration.json --session 551817 | o2-analysis-fwtrack-to-collision-associator -b --configuration json://configuration.json --session 551817 | o2-analysis-multcenttable -b --configuration json://configuration.json --session 551817 | perf record -F 99 -g --call-graph dwarf --user-callchains o2-analysis-event-selection-service -b --configuration json://configuration.json --session 551817 --aod-file @input_data.txt --aod-writer-json OutputDirector.json --readers 1 --aod-memory-rate-limit 209715200 --shm-segment-size 7500000000 --time-limit 300 --resources-monitoring 5 --resources-monitoring-dump-interval 600 --aod-max-io-rate 1000
```

However, if for local debugging you want to run the same workflow, you can achieve this with the following reduced command line:

```
o2-analysis-dq-table-maker-with-assoc -b --configuration json://configuration.json | o2-analysis-fwtrackextension -b --configuration json://configuration.json | o2-analysis-tracks-extra-v002-converter -b --configuration json://configuration.json | o2-analysis-fwtrack-to-collision-associator -b --configuration json://configuration.json | o2-analysis-multcenttable -b --configuration json://configuration.json | o2-analysis-event-selection-service -b --configuration json://configuration.json --aod-file @input_data.txt --aod-writer-json OutputDirector.json
```

## Recipe to run locally

- Copy the files in `input_data.txt`
- Copy the `configuration.json`
- Install `O2Physics` and create a grid token
- Run the `command` reported in the log

Thank you for the attention!