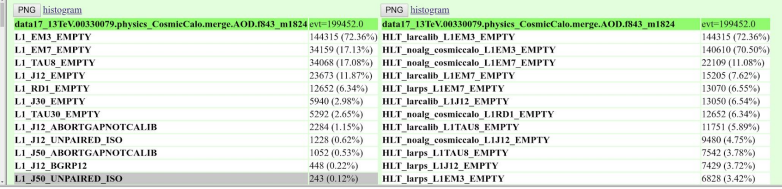
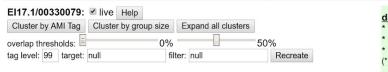
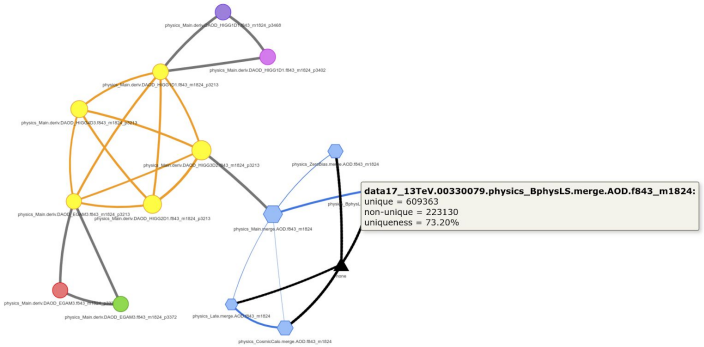






Atlas Event Index

(with new Web Portal)

- What is Event Index
- How it works
- How to use it
  - New Graphical Web Service
- Plans

https://atlas-event-index.cern.ch/EIHadoop

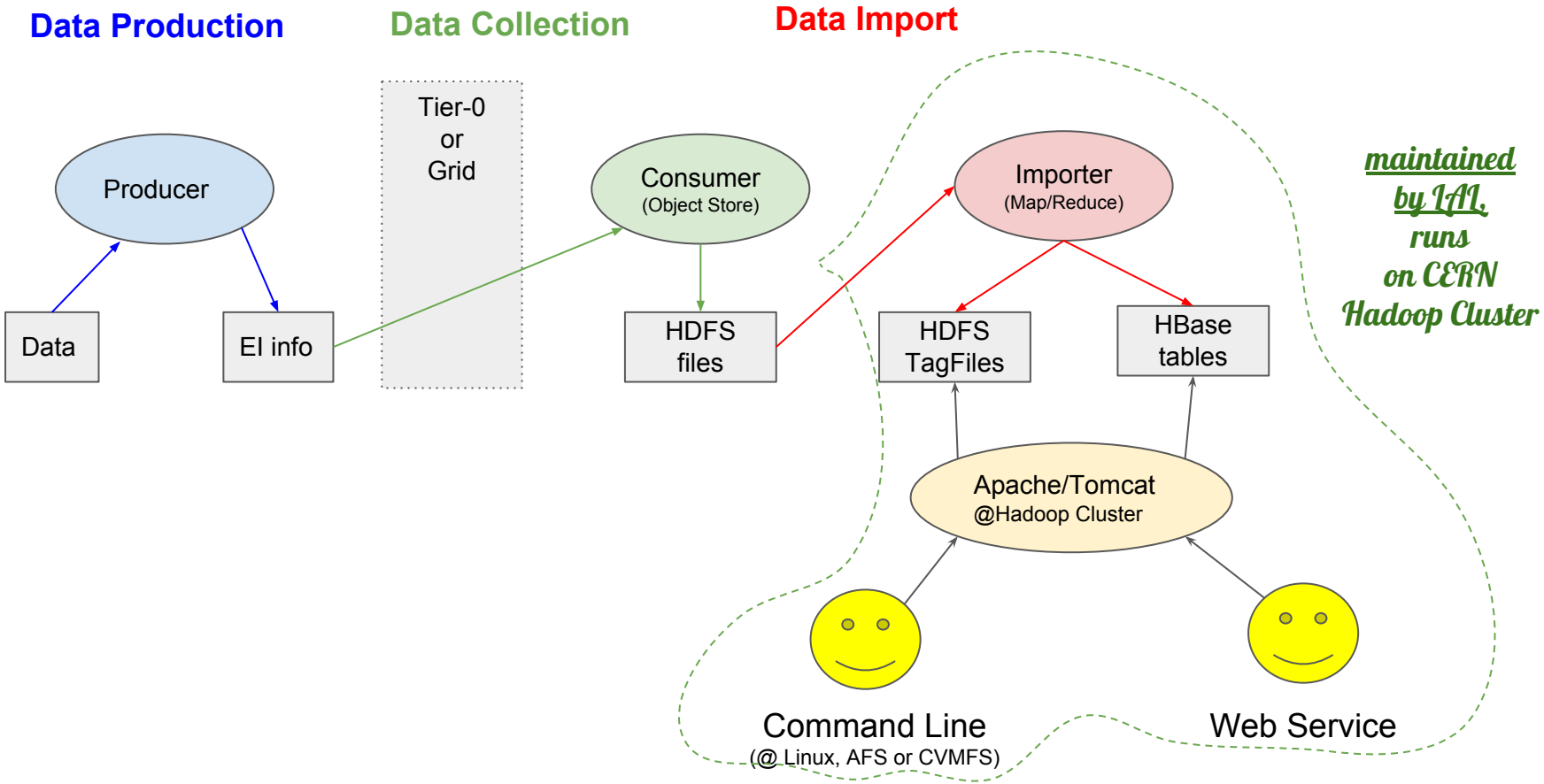
Julius Hrivnac
Ruiun Yuan
Grigorij Rybkin
17 Sep 2018, LAL

What is Event Index

- Event Index (EI) = Complete catalog of ATLAS events, real and simulated
- Using **Hadoop-HBase Map/Reduce** framework
- Uniquely identified by run and event number
- All AODs indexed, DAODs and EVNTs indexed if needed (on request)
- RAWs, RDOs, ESDs referenced (by GUID)
- For each event, EI contains:
  - Run and event number
  - Trigger stream, LB, BCID
  - Trigger masks for each trigger level, decoded trigger chains (passed triggers)
  - References to events on Grid for each processing stages
- Typical usage:
  - Event picking (run number + event number -> GUIDs) [Grigorij Rybkin,...]
  - Consistency checks (duplicated events, overlaps between datasets,...)
  - Trigger checks, counts, selection, statistics and overlaps
- User interface:
  - Command line on Linux @CERN or @CVMFS (used by Panda,...)
  - Interactive Web Service (several Portals)

Most of the Core System has been written (and is maintained) by IAI

EI Architecture

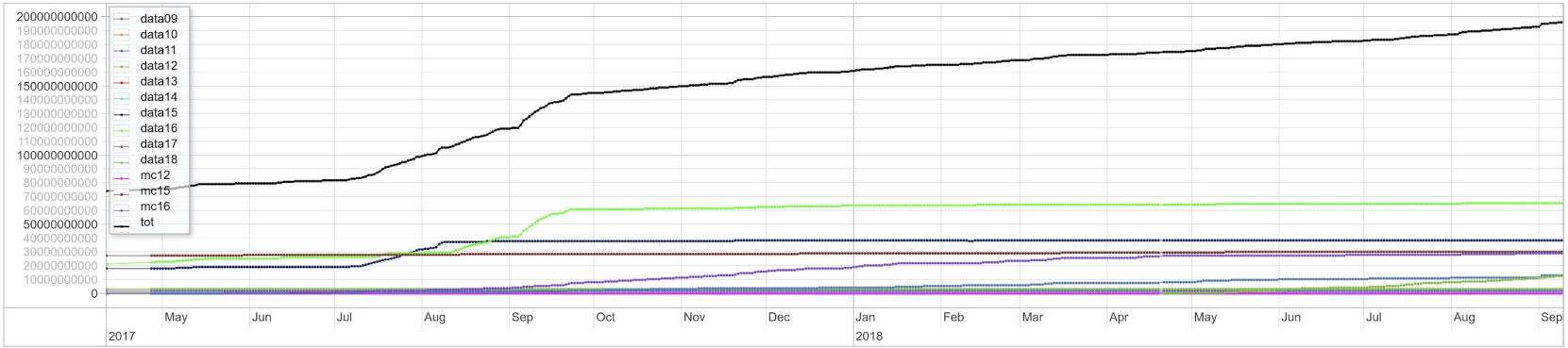


EI Size

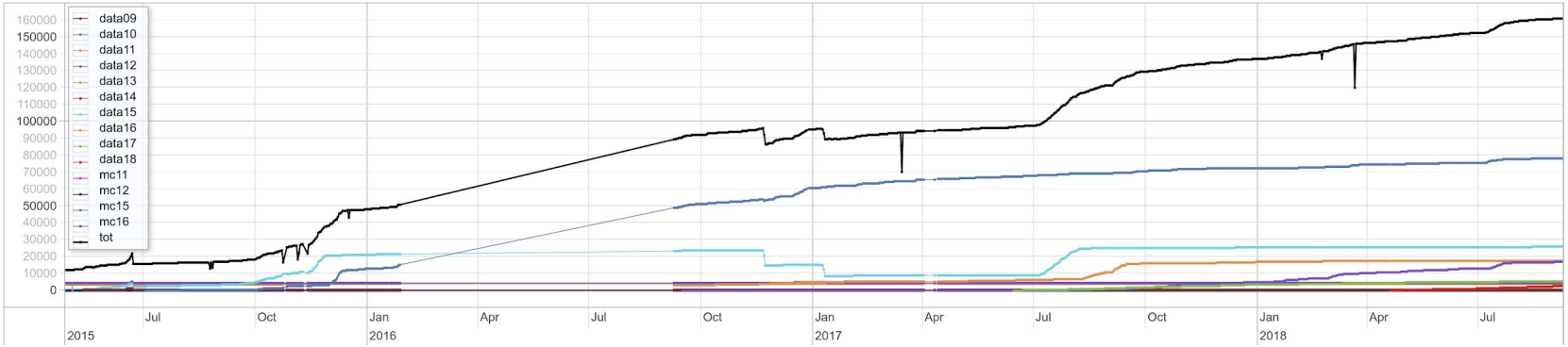
almost 200 000 000 000 events covered

Import statistics

Events (196405464272 @ 2018-09-10)



Datasets (161193 @ 2018-09-10)

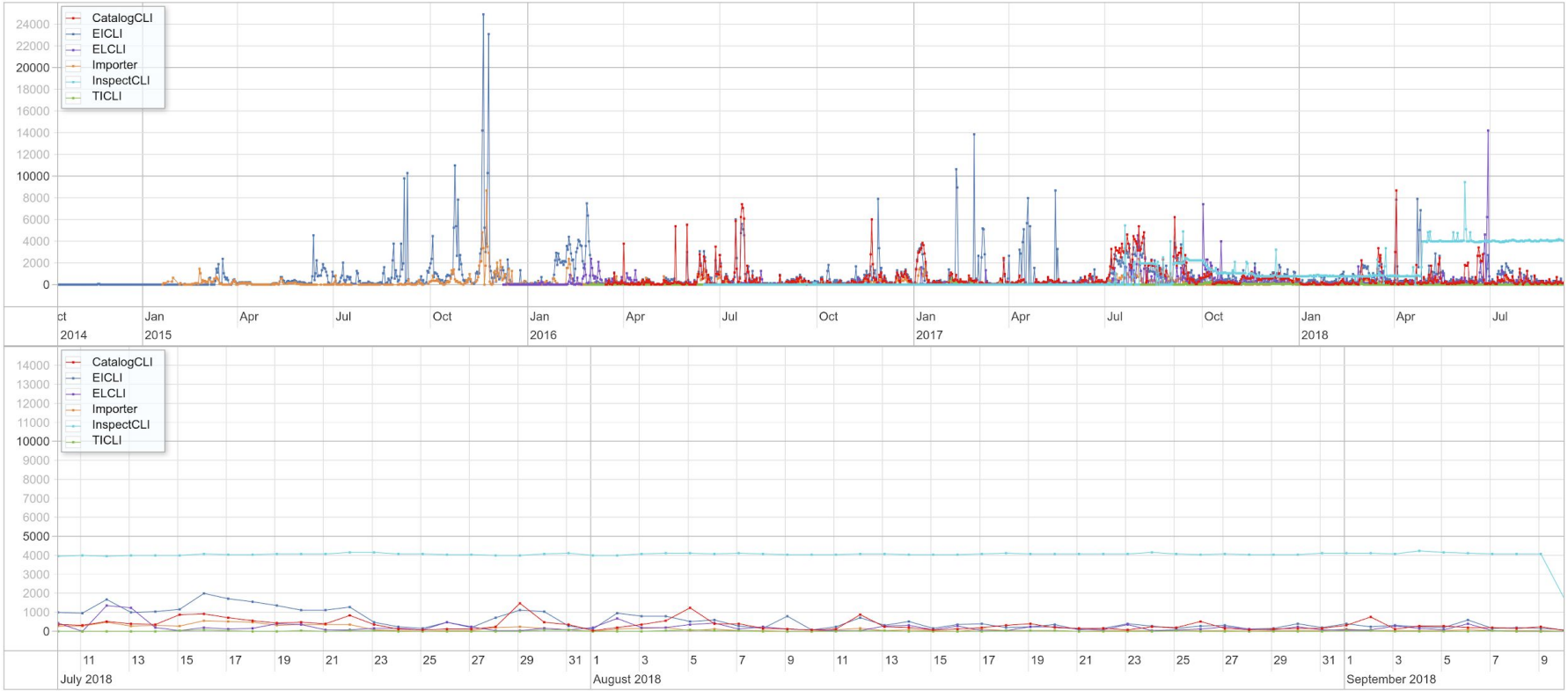


https://atlas-event-index.cern.ch/EIHadoop/Imported.jsp

EI Usage

Event Lookup requests answered in ms

Daily Access statistics (3132442 @ 2018-09-10)



https://atlas-event-index.cern.ch/EIHadoop/Accessed.jsp

Command Line

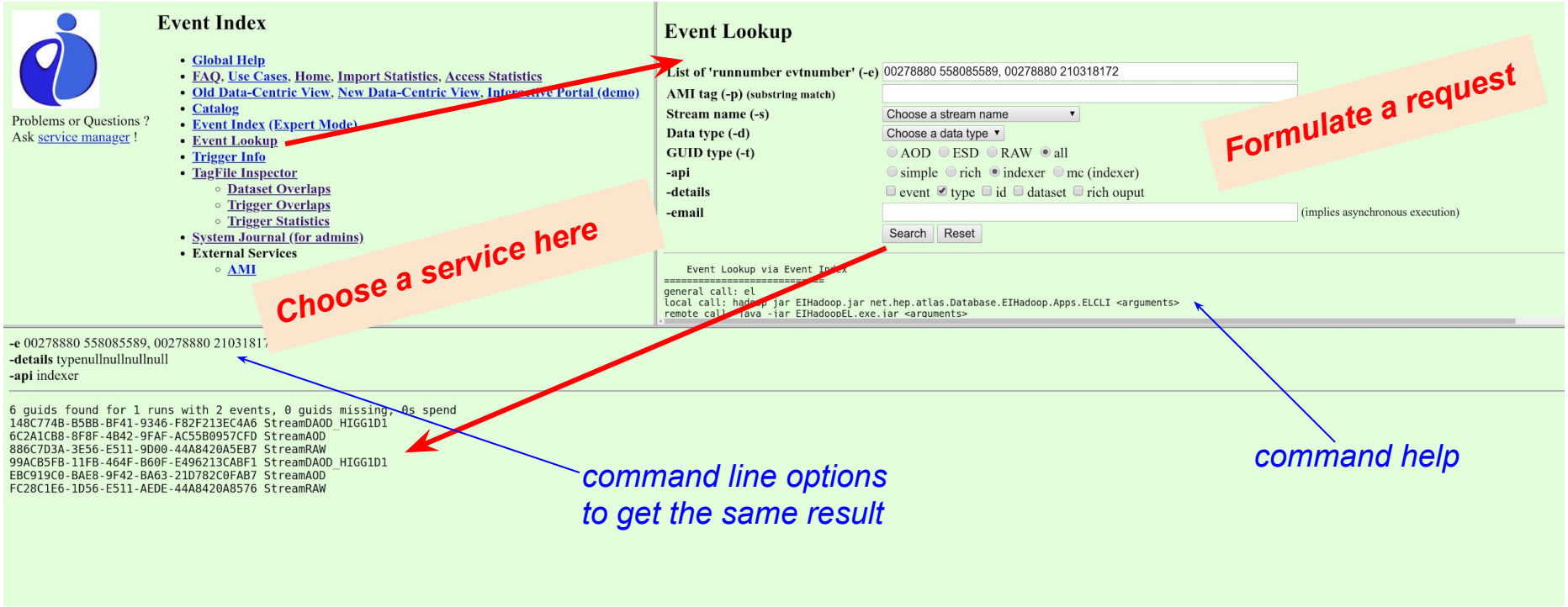
Just examples

```
# to select events where one trigger chain passed
ei -query dataset:data17_13TeV.00339396.physics_ZeroBias.merge.AOD.f887_m1892
   -mr 'chainFired("HLT_noalg_zb_L1ZB")'
   -filter RunNumber_EventNumber

# to check a statistical distribution of LumiBlockN of a dataset
ei -query 'dataset:data16_13TeV.00307454.physics_L1Topo.merge.AOD.x464_m1667'
   -mr 'true'
   -aux 'net.hep.atlas.Database.EIHadoop.Accessor.Aux.VarStat;-v LumiBlockN'
# this request can be combined with a search, for example on a fired trigger
ei -query 'dataset:data15_13TeV.00279515.physics_Main.merge.AOD.r7562_p2521'
   -mr 'trigFired("HLT_tau35_medium1_tracktwo_tau25_medium1_tracktwo_L1TAU20IM_2TAU12IM") &&
        !trigFired("HLT_tau35_tight1_tracktwo_tau25_tight1_tracktwo_L1TAU20IM_2TAU12IM")'
   -aux 'net.hep.atlas.Database.EIHadoop.Accessor.Aux.VarStat;-v BunchId'

# to get GUIDs for a set of runNumber-eventNumbers specified as an argument
el -e '00278880 558085589, 00278880 255538473'
# the same request, give more informations about found events
el -e '00278880 558085589, 00278880 255538473' -details 'type event dataset'
# the same request, search all amiTags (not just the most recent one)
el -e '00278880 558085589, 00278880 255538473' -p all
```

See more in https://atlas-event-index.cern.ch/doc/faq

Service - oriented Portal (old, classical, legacy)

select a service - then apply it to data

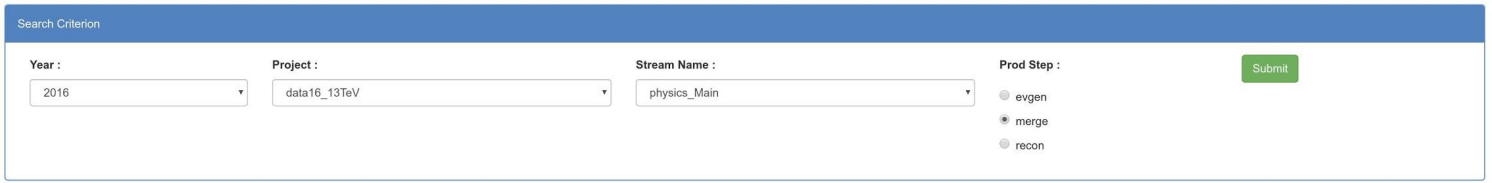


https://atlas-event-index.cern.ch/EIHadoop/indexS.jsp

Data - oriented Portal (table-based prototype)

Select a dataset with AMI tag - then apply an action to it

[Ruiun Yuan,...]



Catalog Query Search Results (Get this result via command line : $ catalog -query 'id:EI16.1 project:data16_13TeV streamName:physics_Main prodStep:merge' -filter 'dataType runNumber version')

runNumber	AOD	DAOD_BPHY1	DAOD_BPHY4	DAOD_BPHY5	DAOD_BPHY7	DAOD_EGAM1	DAOD_EGAM2	DAOD_EGAM3	DAOD_EGAM4	DAOD_EGAM5	DAOD_EGAM6	DAOD_EGAM7
00311321	AMI Tag : r9264_p3083 f758_m1710	AMI Tag : f758_m1710_p2 f758_m1710_p2	AMI Tag : f758_m1710_p2 f758_m1710_p2	AMI Tag : f758_m1710_p2 f758_m1710_p2	AMI Tag : f758_m1710_p2 f758_m1710_p3	AMI Tag : f758_m1710_p3 f758_m1710_p2	AMI Tag : f758_m1710_p2 f758_m1710_p2	AMI Tag : f758_m1710_p2 f758_m1710_p2	AMI Tag : f758_m1710_p2 f758_m1710_p2	AMI Tag : f758_m1710_p2 f758_m1710_p2	AMI Tag : f758_m1710_p2	AMI Tag : f758_m1710_p2 f758_m1710_p2
	Dataset Overlaps											
	General Action	General Action	General Action	General Action	General Action	General Action	General Action	General Action	General Action	General Action	General Action	General Action
00311365	AMI Tag : r9264_p3083 f758_m1710							AMI Tag : r9264_p3083_p3 f758_m1710_p2				
	Dataset Overlaps											
	General Action							General Action				
00311402	AMI Tag :							AMI Tag :				

Full Catalog Info
AMI Info
Number of Events
Event Range
~~Variable Statistic~~
Trigger Statistic
~~Available Trigger~~

Action Run Number Result (Get this result via command line : $ inspect -query 'id:EI16.1.data16_13TeV.physics_Main.merge.DAOD_BPHY1.f758_m1710_p2950.00311321')

-query id:EI16.1.data16_13TeV.physics_Main.merge.DAOD_BPHY1.f758_m1710_p2950.00311321 status:good
-filter

```
0s spend
1 : TagFile(id: EI16.1.data16_13TeV.physics_Main.merge.DAOD_BPHY1.f758_m1710_p2950.00311321)
description: name:    EI16.1.data16_13TeV.physics_Main.merge.DAOD_BPHY1.f758_m1710_p2950.00311321
             path:    /user/atlevind/EI16.1/data16_13TeV.00311321.physics_Main.merge.DAOD_BPHY1.f758_m1710_p2950
             type:    tags
             format:  map
             info:    Copy of EI16.2.data16_13TeV.physics_Main.merge.DAOD_BPHY1.f758_m1710_p2950.00311321.guid_transid_consumerid_pandataskid_pandauserid
             key:     RunNumber_EventNumber=String
             schema:  LumiBlockN=int BunchId=int EventTime=int EventTimeNanoSec=int EventWeight=float McChannelNumber=int Lvl1ID=String IsSimulation=int IsCalibration=int IsTestBeam=int L1trigMask=String L2trigMask=String EFtrigMask=String SMK=int
```

Data - oriented Portal (new, graphical, interactive)

select a run - then apply an action to it

News

- Use Case list and Frequently Asked Questions list assembled (16/1/2017).
- New Graphical Data-Centric View (13/3/2018).
- Venn diagrams for overlaps.
- Trigger Overlap tables per LumiBlock ranges (1/7/2018).

Atlas Event Index in Hadoop

https://atlas-event-index.cern.ch/EIHadoop

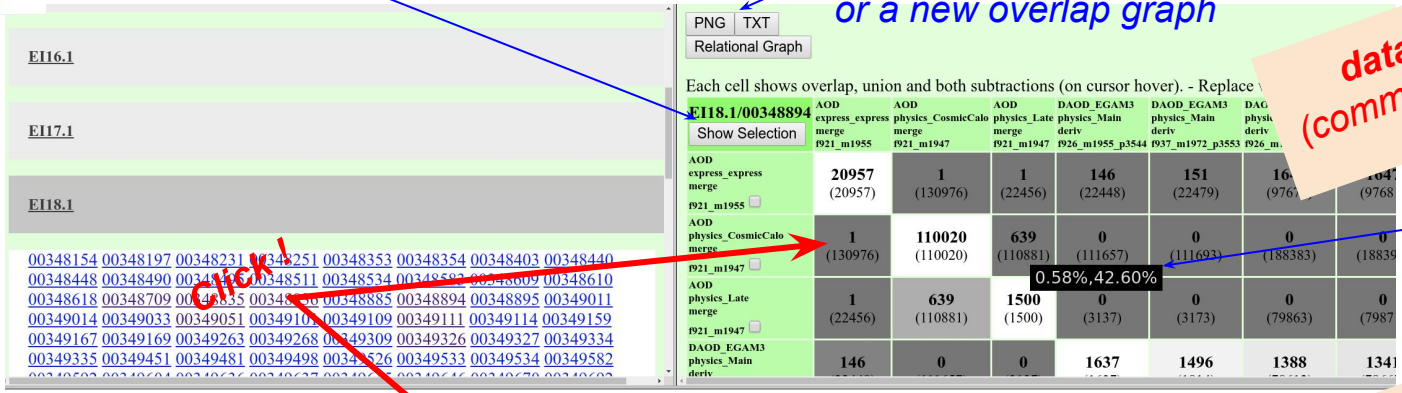
Run Number View

to create a sub-table

to create a PNG or TXT view of the table or a new overlap graph

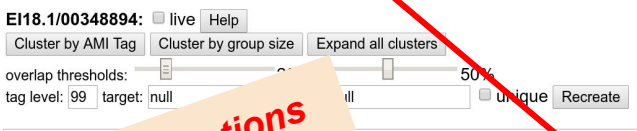
datasets overlap table (command results go here too)

tables shows overlap & union, Hover over cell to see subtractions

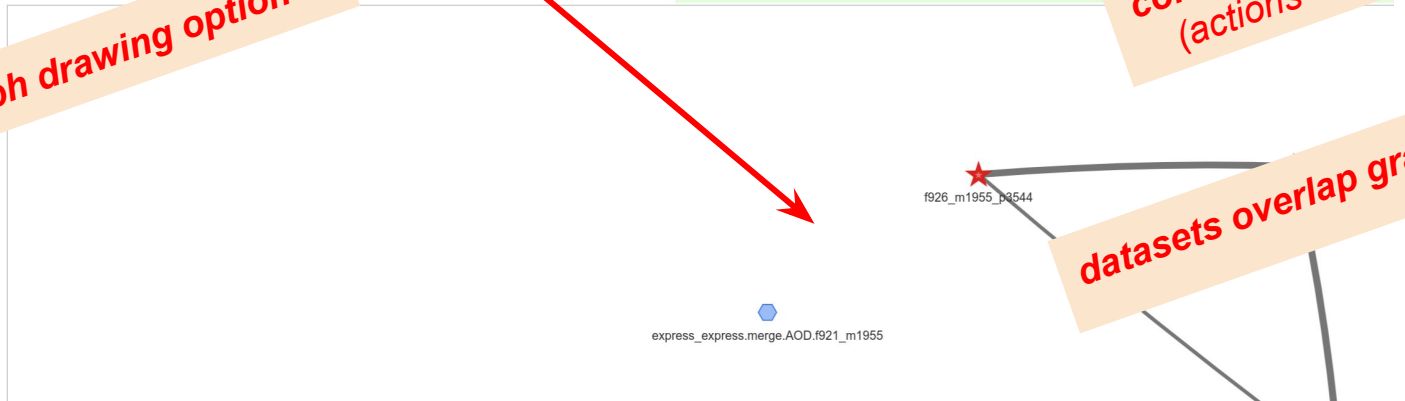


click!

graph drawing options



context-sensitive menu (actions on datasets)



datasets overlap graph

Run Number View

EI16.1

EI17.1

EI18.1

00348154 00348197 00348231 00348251 00348353 00348354 00348403 00348440
00348448 00348490 00348495 00348511 00348534 00348583 00348609 00348610
00348618 00348709 00348835 00348836 00348885 00348894 00348895 00349011
00349014 00349033 00349051 00349101 00349109 00349111 00349114 00349159
00349167 00349169 00349263 00349268 00349309 00349326 00349327 00349334
00349335 00349451 00349481 00349498 00349526 00349533 00349534 00349582

PNG | TXT

Relational Graph

Each cell shows overlap, union and both subtractions (on cursor hover). - Replace with OEI Overlap T

EI18.1/00348894 Show Selection	AOD express_express merge f921_m1955	AOD physics_CosmicCalo merge f921_m1947	AOD physics_Late merge f921_m1947	DAOD_EGAM3 physics_Main deriv f926_m1955_p3544	DAOD_EGAM3 physics_Main deriv f937_m1972_p3553	DAOD_EXOT4 physics_Main deriv f926_m1955_p3544	DAOD_EXO physics_Mai deriv f937_m1972
AOD express_express merge f921_m1955	20957 (20957)	1 (130976)	1 (22456)	146 (22448)	151 (22479)	1642 (97678)	164 (9768
AOD physics_CosmicCalo merge f921_m1947	1 (130976)	110020 (110020)	639 (110881)	0 (111657)	0 (111693)	0 (188383)	0 (18839
AOD physics_Late merge f921_m1947	1 (22456)	639 (110881)	1500 (1500)	0 (3137)	0 (3173)	0 (79863)	0 (7987
DAOD_EGAM3 physics_Main deriv	146	0	0	1637	1496	1388	134

0.58%,42.60%

EI18.1/00348894: live Help

Cluster by AMI Tag | Cluster by group size | Expand all clusters

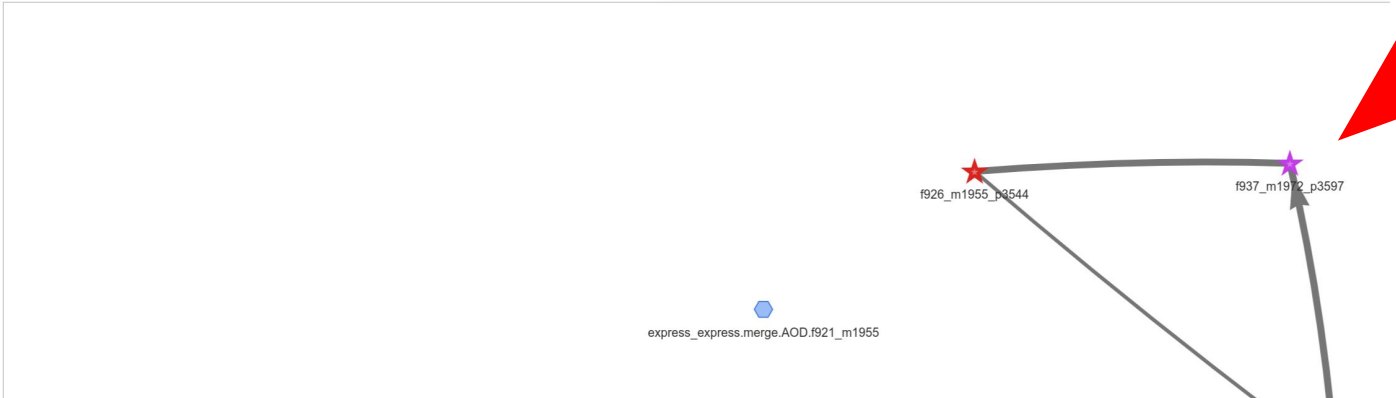
overlap thresholds: 20% 50%

tag level: 99 target: null filter: null unique Recreate

data18_13TeV.00348894.physics_ZeroBias.merge.AOD.f921_m1947

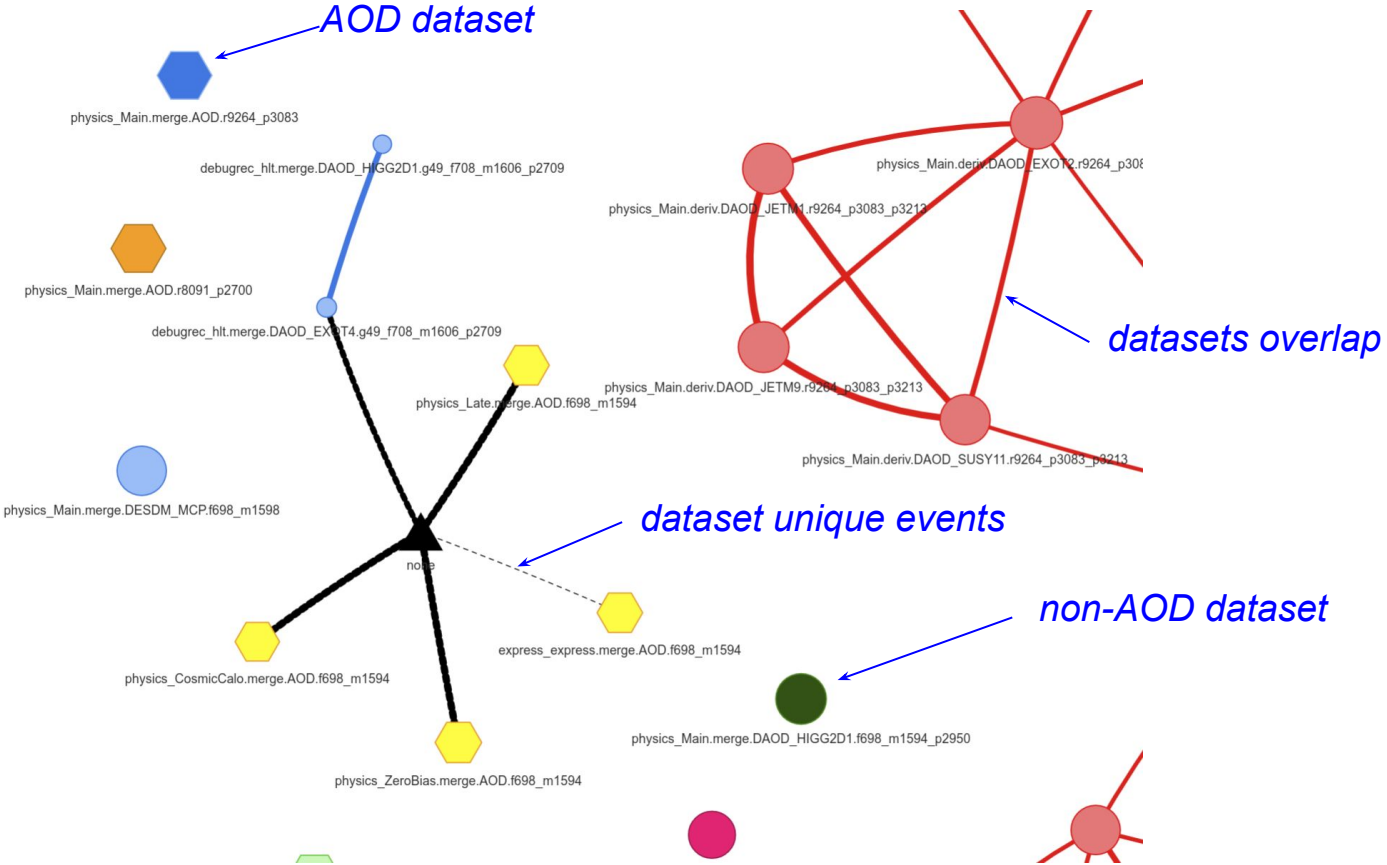
* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps - TagFile Sample - TagFile
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal

(*) ... may be slow, (+) ... external service

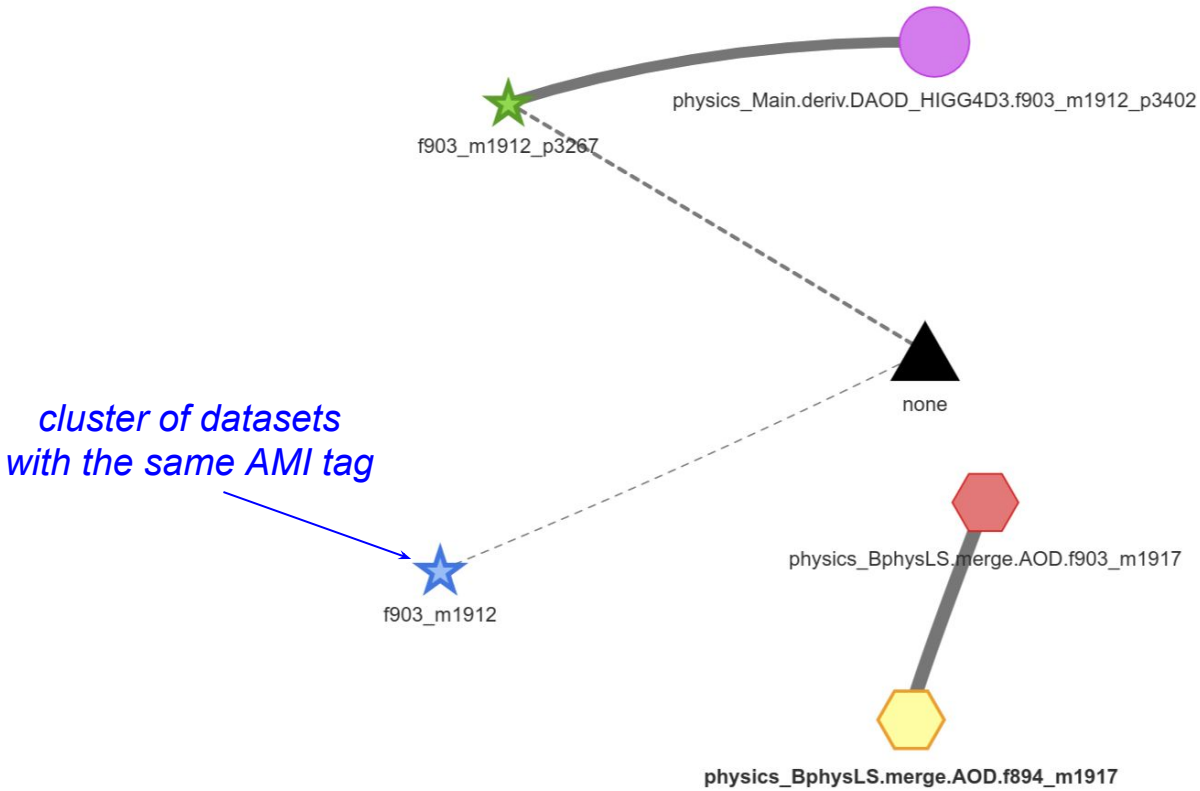


Datasets Graphical View

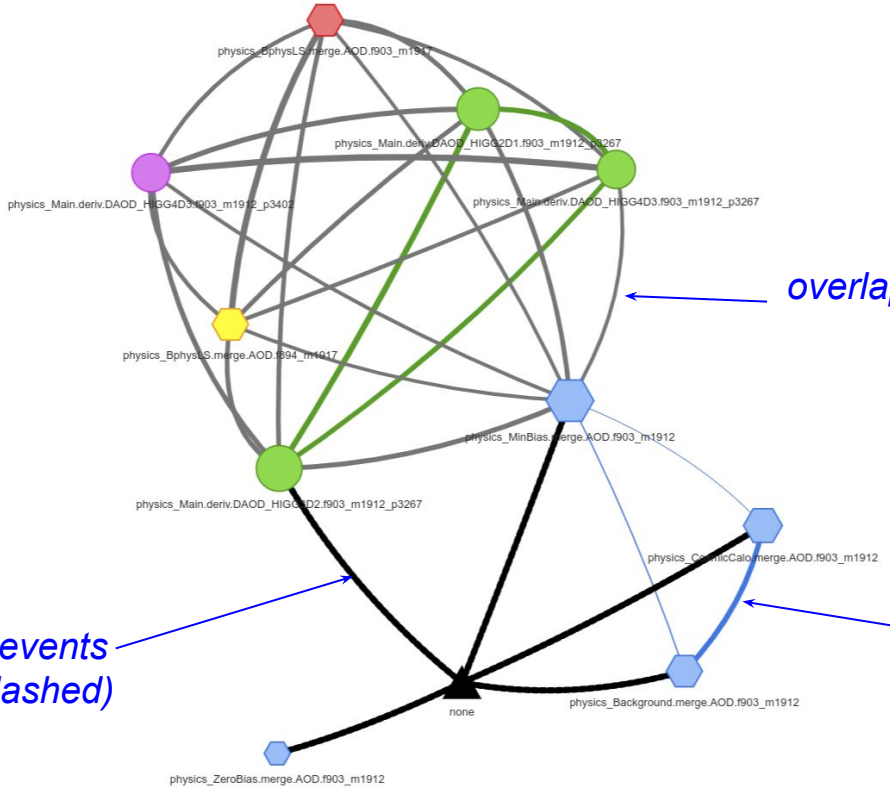
Datasets Graphical View



Datasets Graphical View



Overlaps between Tags, Unique Events

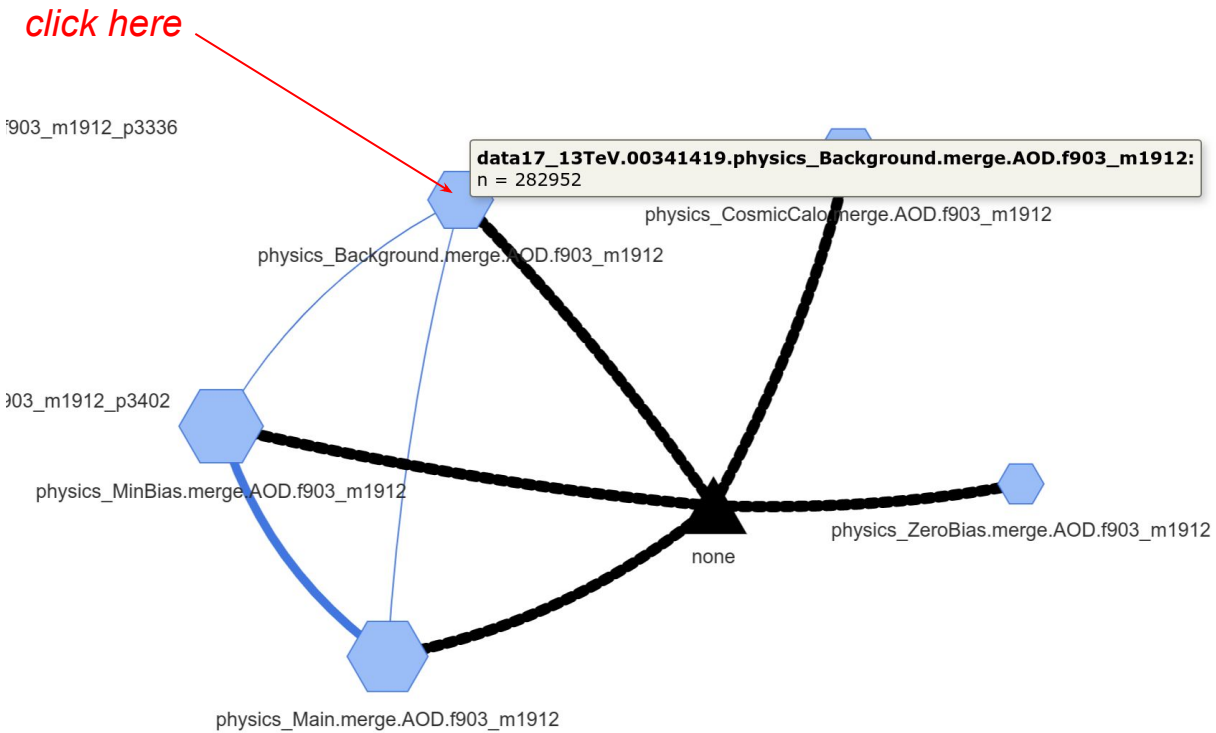


overlap between tags (grey)

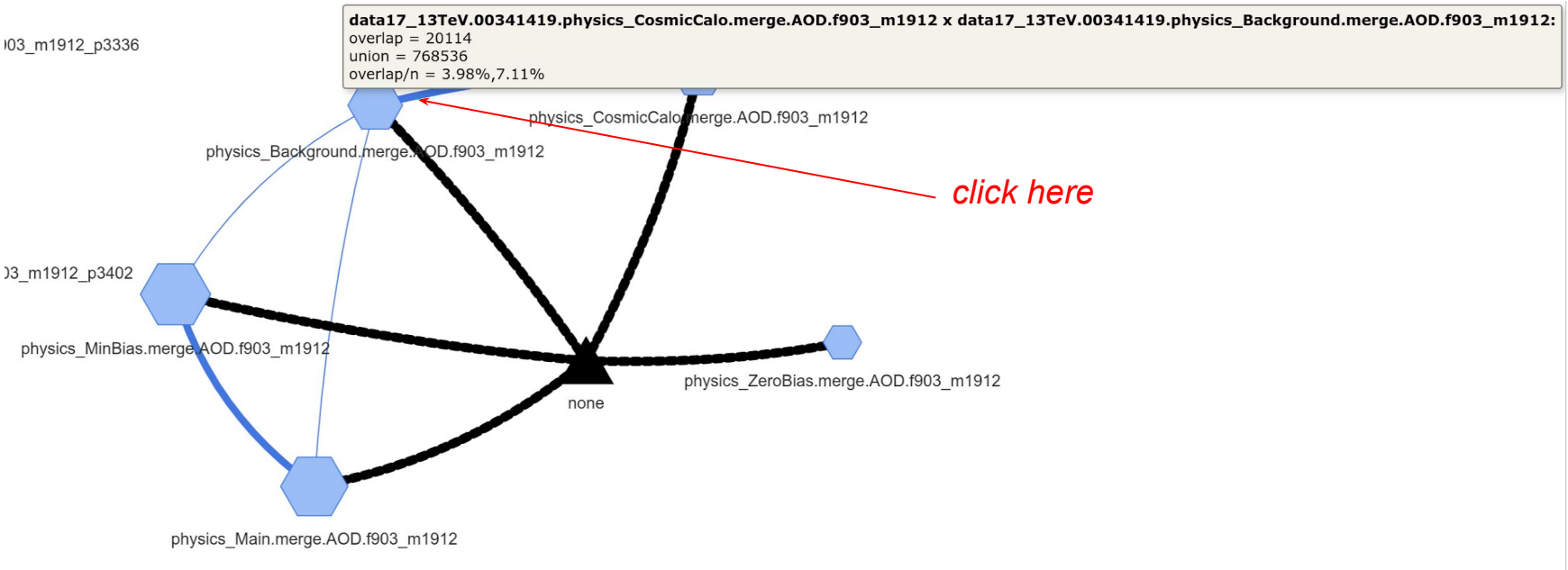
unique events (black dashed)

overlap within tag (with color of the tag)

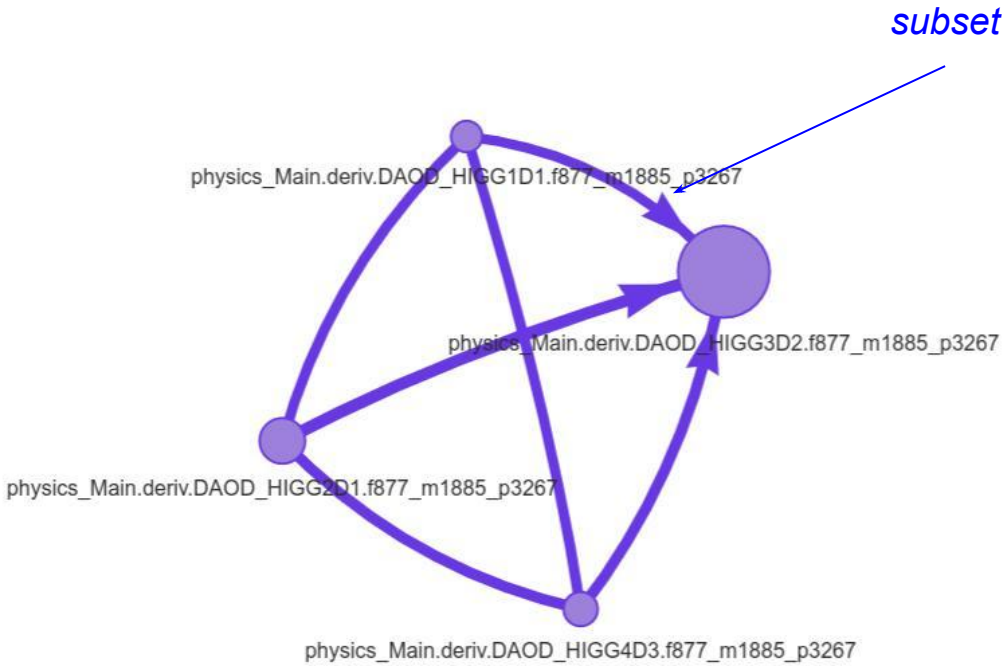
Dataset Details

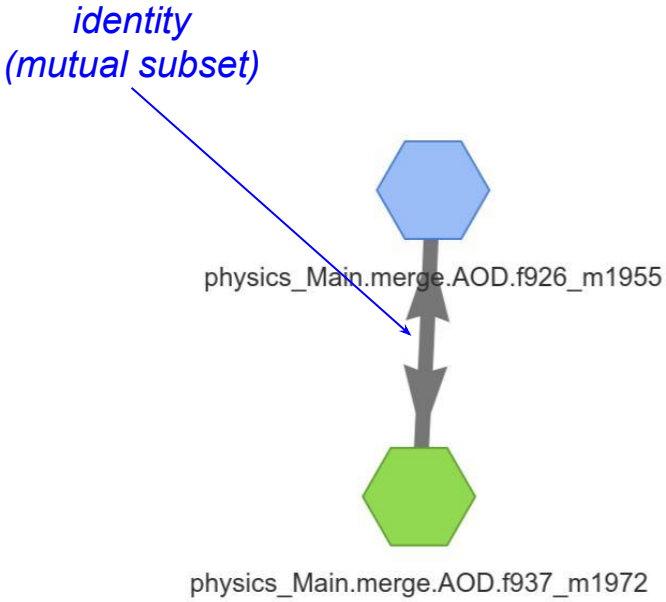


Overlap Details

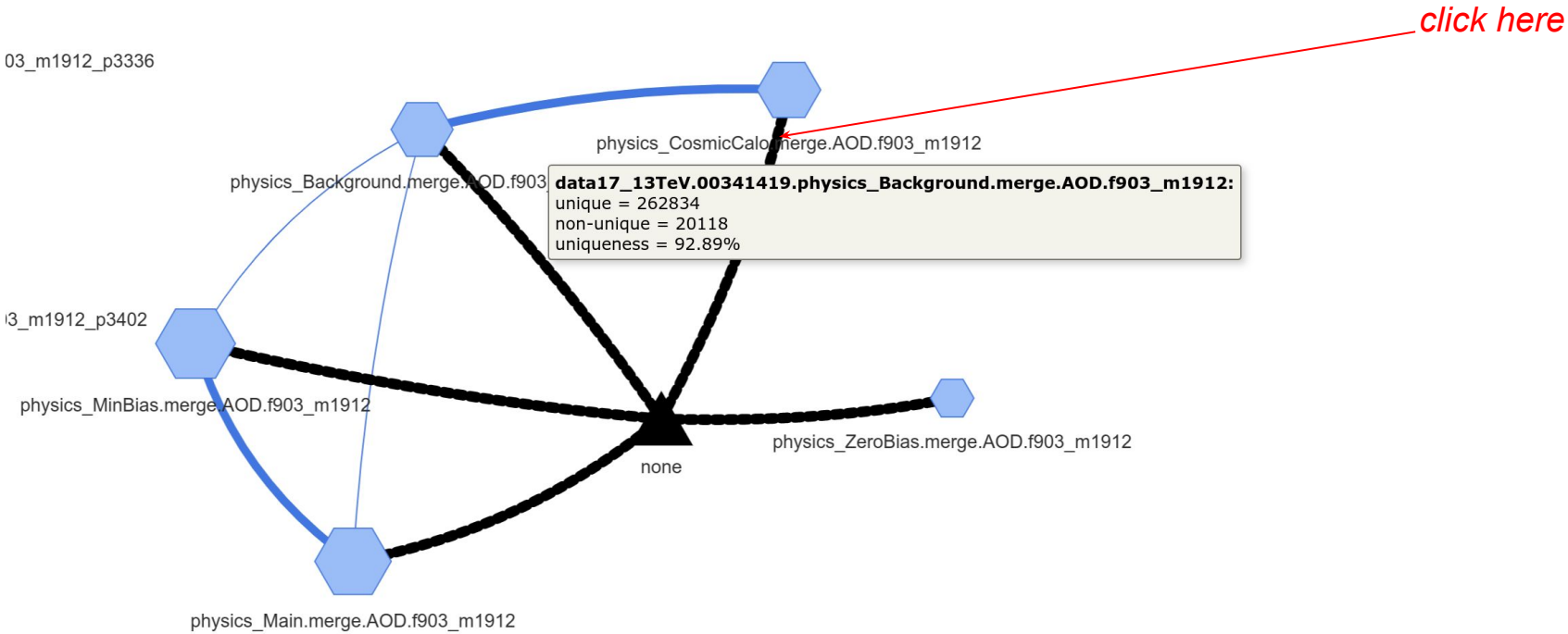


Subsets

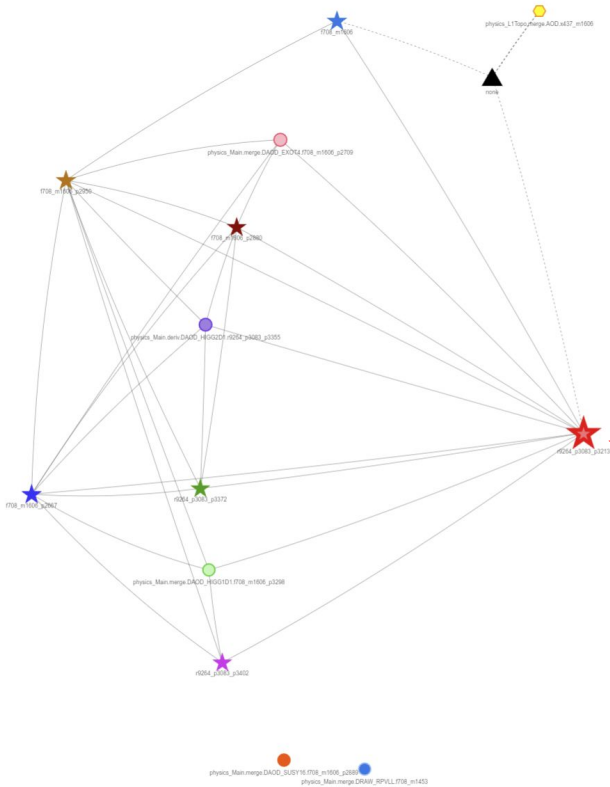

subset
physics_Main.deriv.DAOD_HIGG1D1.f877_m1885_p3267
physics_Main.deriv.DAOD_HIGG3D2.f877_m1885_p3267
physics_Main.deriv.DAOD_HIGG2D1.f877_m1885_p3267
physics_Main.deriv.DAOD_HIGG4D3.f877_m1885_p3267


identity
(mutual subset)
physics_Main.merge.AOD.f926_m1955
physics_Main.merge.AOD.f937_m1972

Unique Events Details



Clusters



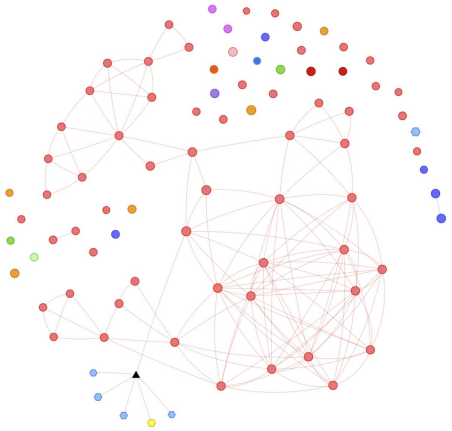
click to expand cluster
(or use menu to expand them all)

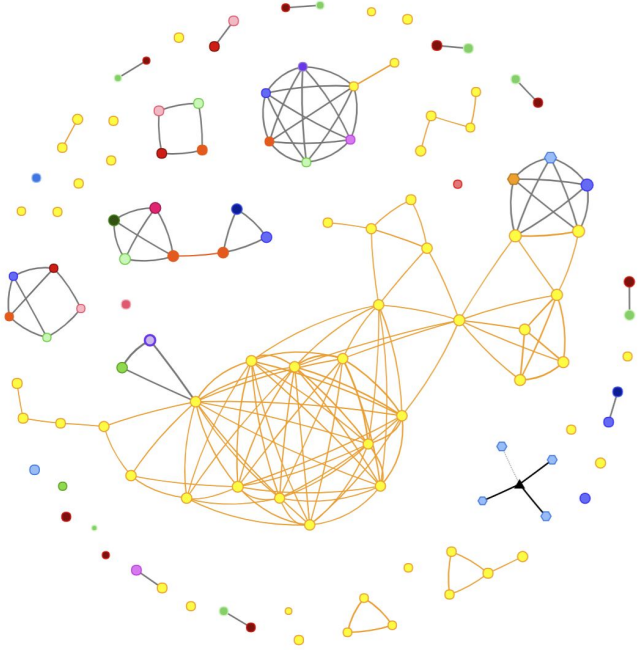
Expanded Clusters

de-select to stop animation

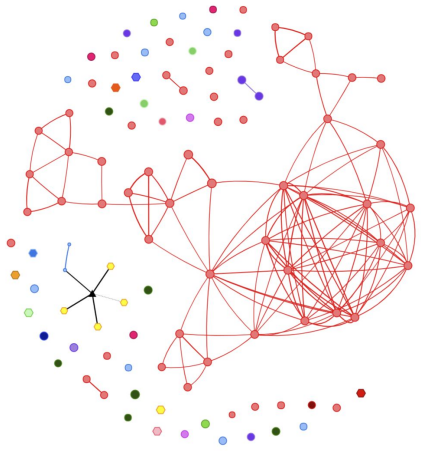
EI16.1/00298690: live Help
Cluster by AMI Tag | Cluster by group size | Expand all clusters
overlap thresholds: 20% 80%
tag level: 99 target: null filter: null Recreate
Context-sensi

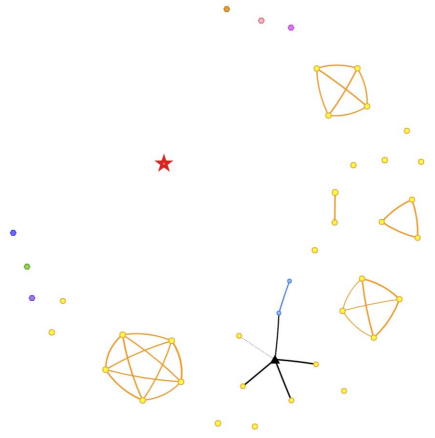
re-create after options change





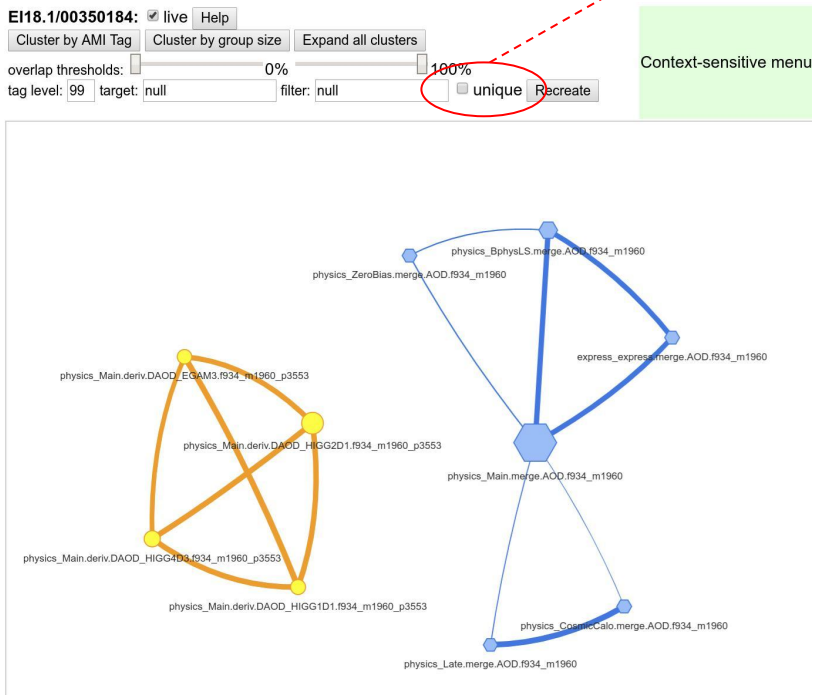
- *zoom to get names & info*
- *move symbols around to re-arrange graph*

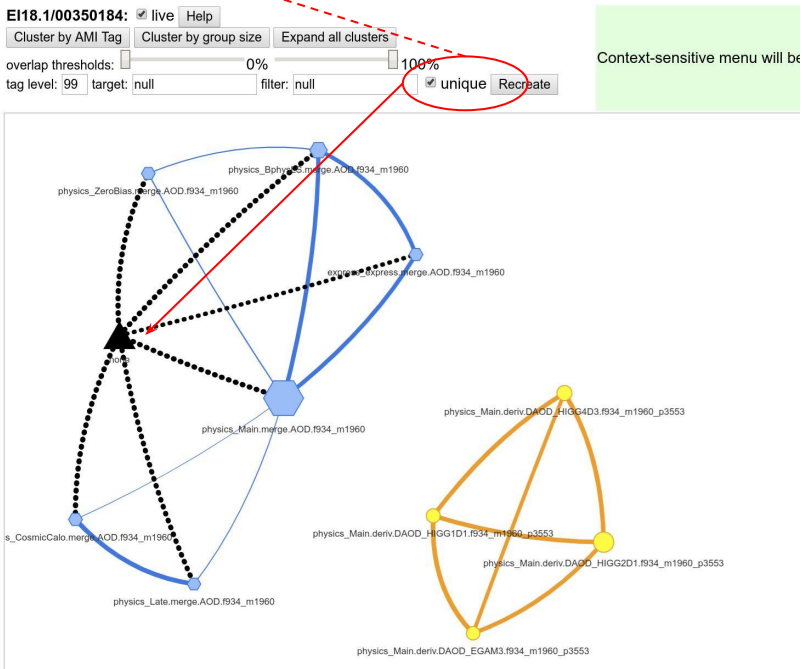




Uniqueness

show uniqueness triangle



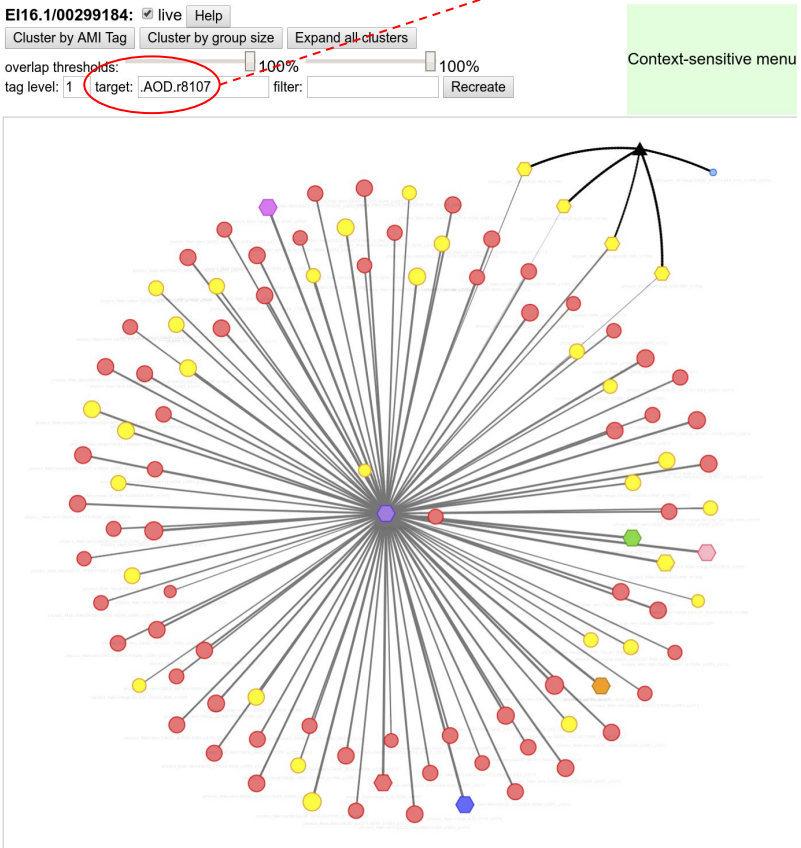


Filter


EI16.1/00299184: live Help
Cluster by AMI Tag
Cluster by group size
Expand all clusters
overlap thresholds: 0% 100%
tag level: 1 target: filter: .AOD. Recreate
Context-sensitive menu
show only AODs
physics_CosmicCalo.merge.AOD.f698_m1594
physics_Late.merge.AOD.f698_m1594
physics_Main.merge.AOD.r8109_p2700
physics_Main.merge.AOD.f698_m1594
physics_ZeroBias.merge.AOD.f698_m1594
express_express.merge.AOD.f698_m1594
physics_Main.merge.AOD.r9264_p3083
physics_Main.merge.AOD.r9214_p3068
physics_Main.merge.AOD.r8108_p2700
physics_Main.merge.AOD.r8092_p2700
physics_Main.merge.AOD.r8091_p2700

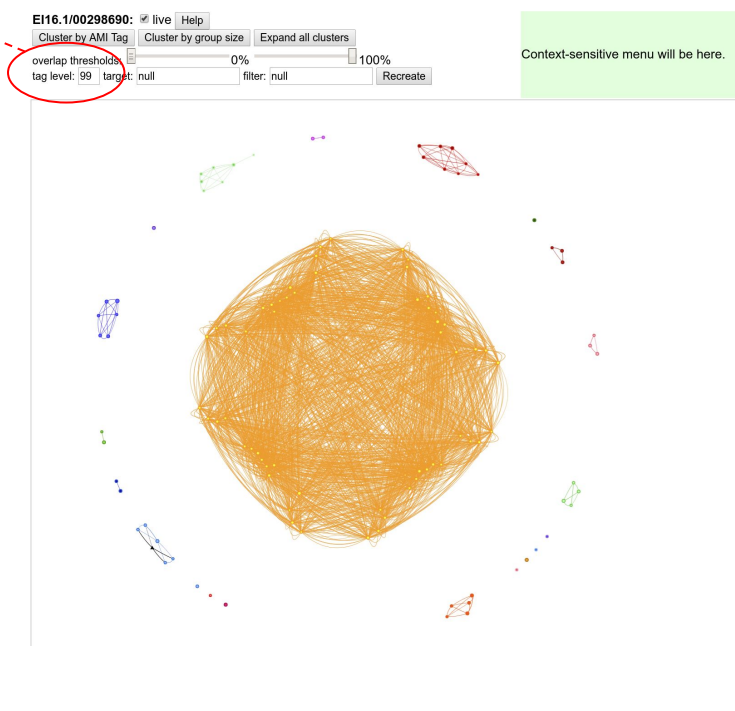
Target

show all overlaps to AOD & r8107



All Overlaps (different tag levels)

tag levels to be considered as equivalent



All Overlaps of AODs

show all overlaps within a tag

show all overlaps between tags

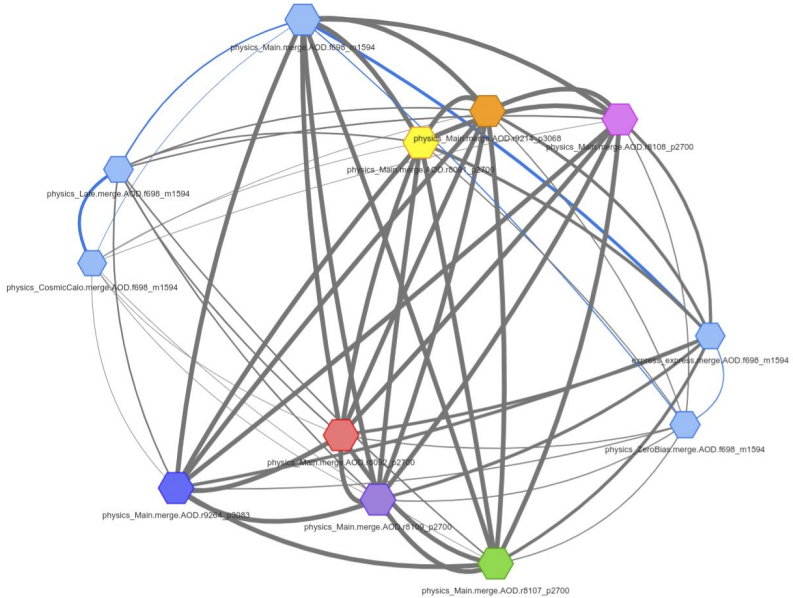
EI16.1/00299184: live Help

Cluster by AMI Tag | Cluster by group size | Expand all clusters

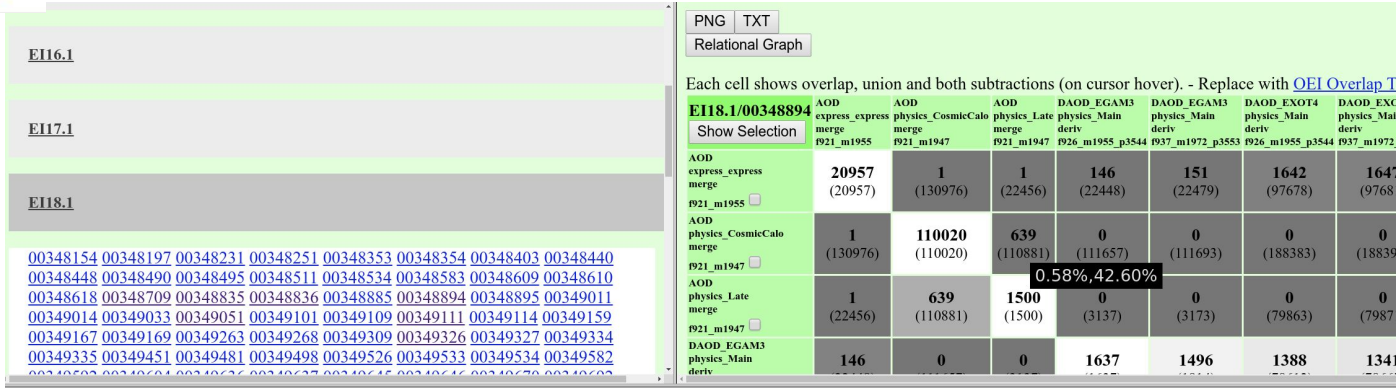
overlap thresholds: 0% 0%

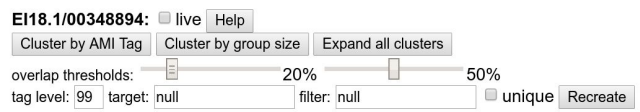
tag level: 1 target: filter: .AOD. Recreate

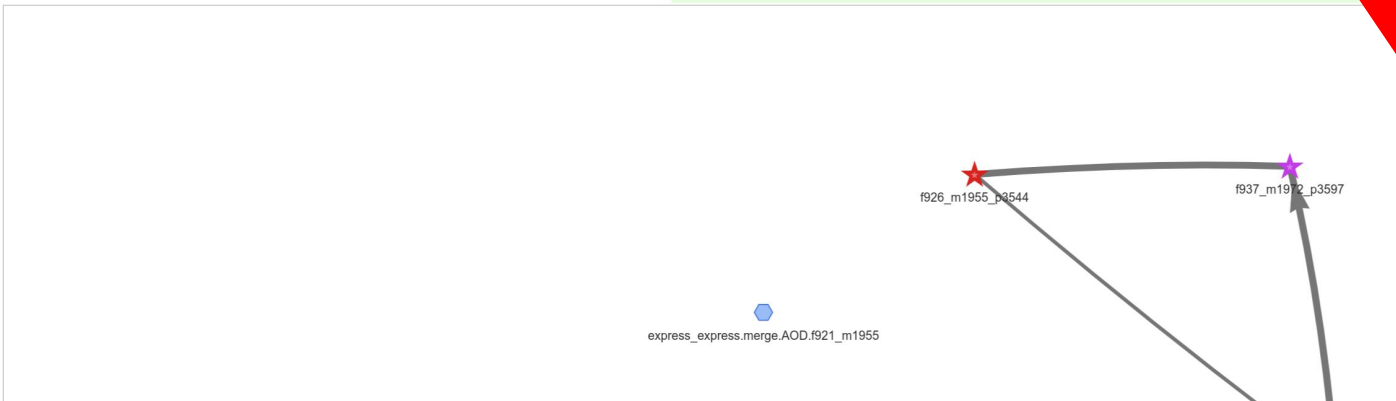
Context-sensitive menu will be here.



Run Number View

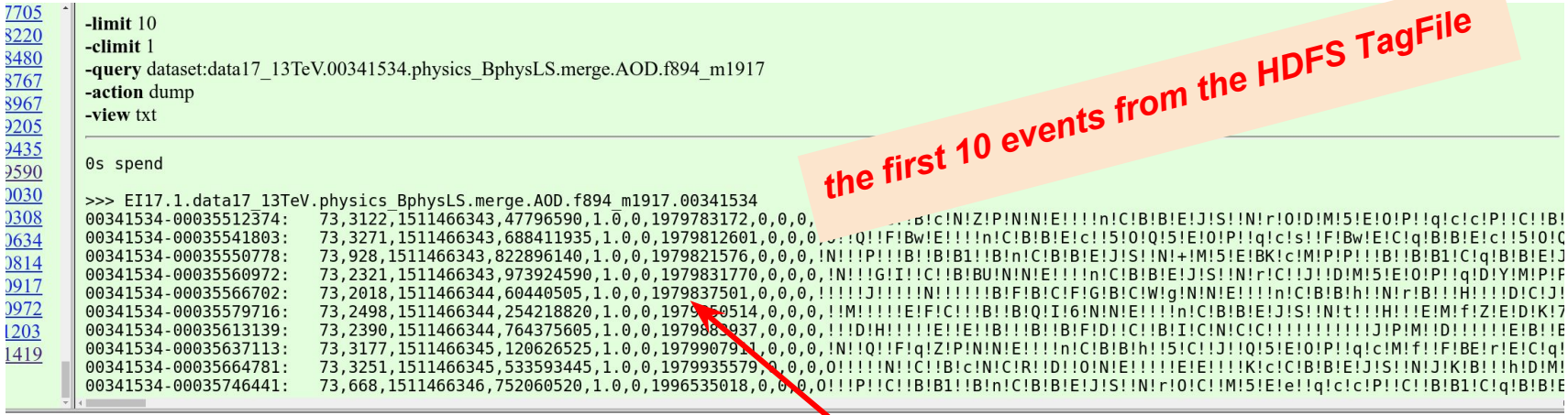






Context-sensitive Actions (depends on object selected in Dataset View)

Menu: TagFile Sample



the first 10 events from the HDFS TagFile

pand all clusters

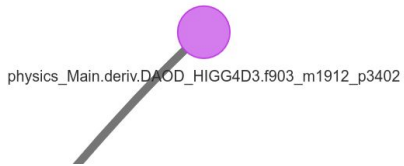
50%

ıull

data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917

* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps(*) - TagFile Sample - TagFile Info(*) - Journal(run)(tag)(*) - AMI
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal

(*) ... may be slow



Menu: TagFile Info

7705
8220
8480
8767
8967
9205
9435
9590
0030
0308
0634
0814
0917
0972
1203
1419

-limit 10
-climit 1
-query dataset:data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917
-action info
-view txt

```
4s spend

>>> EI17.1.data17_13TeV.physics_BphysLS.merge.AOD.f894_m1917.00341534
nol = 232622
first key: 00341534-00035512374
last  key: 00341534-07228114807

modified: 13:31:36.825 07/Dec/2017
```

Get this result via command line:

```
$ inspect -query dataset:data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917 -action info -limit 10 -climit 1
```

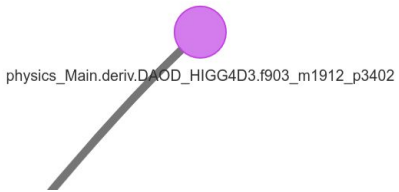
information about HDFS TagFile
(extracted from the file, not from the Catalog)

pand all clusters

50%

null

data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917
* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps(*) - TagFile Sample - TagFile Info(*) - Journal(run)(tag)(*) - AMI
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal
(*) ... may be slow



Menu: Journal

imported, added to Catalog, then inspected

Entries of , data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917 in action, data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917 in result, data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917 in comment between 00:00:00 01/Jan/1990 and 00:00:00 01/Jan/2100:

actor ▲▼	rc ▲▼	time ▲▼	timesstamp ▲▼	action ▲▼	result ▲▼
Importer	0	57	13:31:42.909 07/Dec/2017	/afs/cern.ch/user/a/atlevind/work/DatasetsConfOS.m... more	
CatalogCLI	0	3	13:33:06.745 07/Dec/2017	{-query=id:EI17.1.data17_13TeV.physics_BphysLS.mer... more	Info: 3... more
InspectCLI	0	0	16:57:38.021 11/Jan/2018	{-runs=00341534, -view=DOverlap, -limit=0, -climit... more	...1/00341... more
InspectCLI	0	0	16:57:43.442 11/Jan/2018	{-triggers=AOD physics_Background m... more	... >>> DOverlap/EI17.1/00341... more
InspectCLI	0	0	10:55:15.165 12/Jan/2018	{-runs=00341534	Info: 0s spend Result: >>> DOverlap/EI17.1/00341... more
InspectCLI	0	0	14:48:32.509 22/Jan/2018	{-run... more	Info: 0s spend Result: >>> DOverlap/EI17.1/00341... more
InspectCLI	0	0	14:50:28.760 22/Jan/201	...=0, -climit... more	Info: 0s spend Result: >>> DOverlap/EI17.1/00341... more
InspectCLI	0	3	14:53:34.905 22/Jan/2018	...verlap, -limit=0, -climit... more	Info: 3s spend Result: >>> DOverlap/EI17.1/00341... more
InspectCLI	0	0	14:55:18.365 22/Jan/2018	...-view=DOverlap, -limit=0, -climit more	Info: 0s spend Result: >>> DOverlap/EI17.1/00341 more

all Journal entries concerning the dataset (or run or tag)
(each entry contains full information, incl. complete result)

nd all clusters

50%

ll

data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917

* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps(*) - TagFile Sample - TagFile Info(*) - Journal(run)(tag)(*) - AMI
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal

(*) ... may be slow

Menu: AMI

thanks to AMI team for releasing pure Java client

Element_Info	
logicalDatasetName	= data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917
nFiles	= 174
totalEvents	= 232622
totalSize	= 29848367568
runNumber	= 341534
period	= N4
prodsysStatus	= Tier 0
dataType	= AOD
ecmEnergy	= 13000000
beamType	= collisions
AtlasRelease	= Athena_21.0.42
conditionsTag	= CONDBR2-BLKPA-2017-13
geometryVersion	= ATLAS-R2-2016-01-00-01
streamName	= physics_BphysLS

full AMI information about dataset
(via direct call to AMI)

and all clusters

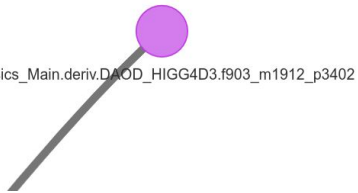
50%

ull

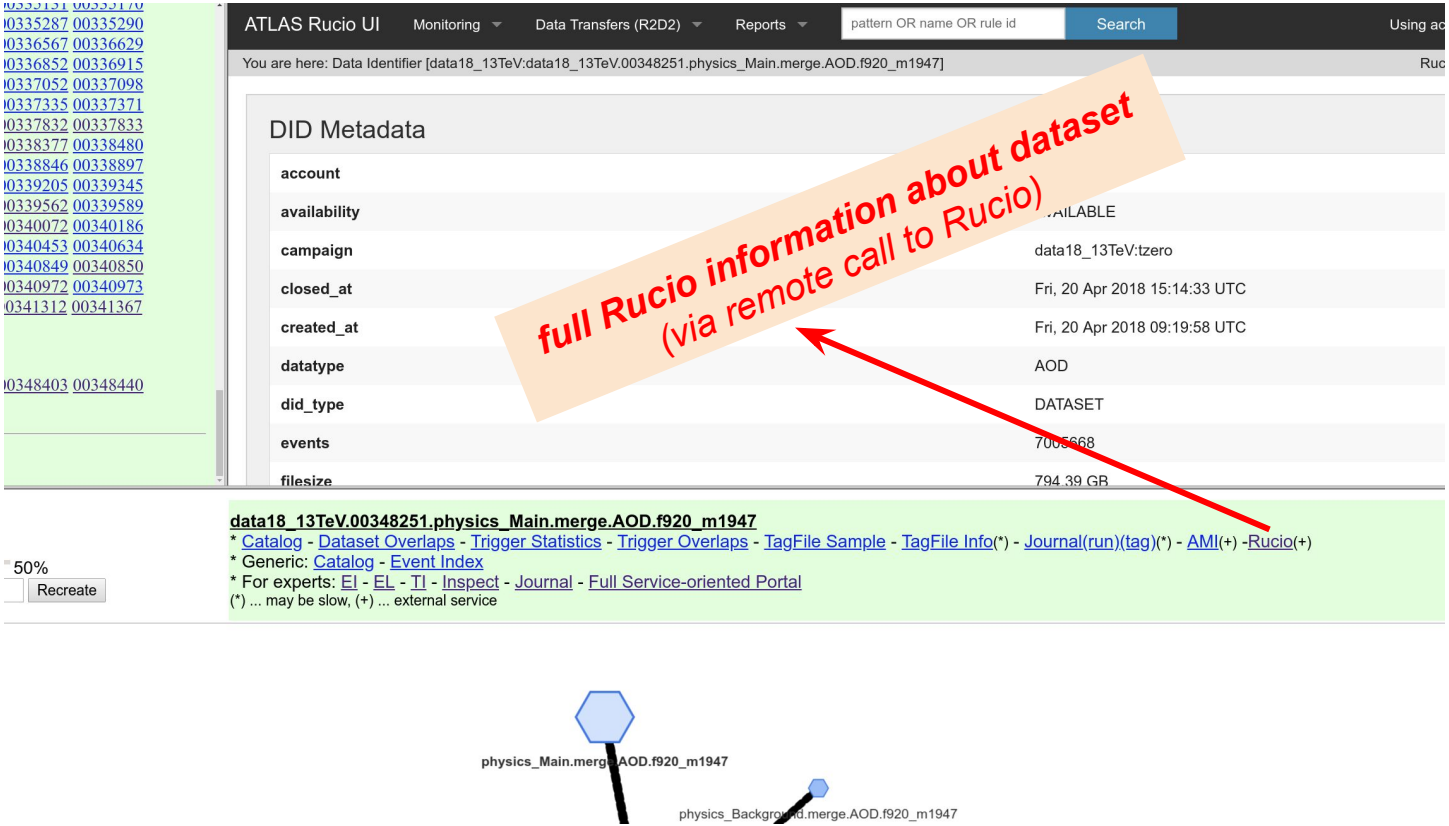
data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917

* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps(*) - TagFile Sample - TagFile Info(*) - Journal(run)(tag)(*) - AMI
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal

(*) ... may be slow



Menu: Rucio


ATLAS Rucio UI
Monitoring
Data Transfers (R2D2)
Reports
pattern OR name OR rule id
Search
You are here: Data Identifier [data18_13TeV:data18_13TeV.00348251.physics_Main.merge.AOD.f920_m1947]
DID Metadata
account
availability
campaign
data18_13TeV:tzero
closed_at
Fri, 20 Apr 2018 15:14:33 UTC
created_at
Fri, 20 Apr 2018 09:19:58 UTC
datatype
AOD
did_type
DATASET
events
filesize
794.39 GB
full Rucio information about dataset
(via remote call to Rucio)
data18_13TeV.00348251.physics_Main.merge.AOD.f920_m1947
* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps - TagFile Sample - TagFile Info(*) - Journal(run)(tag)(*) - AMI(+) -Rucio(+)
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal
(*) ... may be slow, (+) ... external service
50%
Recreate
physics_Main.merge.AOD.f920_m1947
physics_Background.merge.AOD.f920_m1947

Menu: COMA

EI18

00348154 00348197 00348231 00348251 00348353 00348354 00348403 00348440
00348448 00348490 00348495 00348511 00348534 00348583 00348609 00348610
00348618 00348709 00348835 00348836 00348885 00348894 00348895 00349011
00349014 00349033 00349051 00349101 00349109 00349111 00349114 00349159
00349167 00349169 00349263 00349268 00349309 00349326 00349327 00349334
00349335 00349451 00349481 00349498 00349526 00349533 00349534 00349582
00349592 00349604 00349636 00349637 00349645 00349646 00349670 00349692
00349693 00349720 00349769 00349840 00349841 00349842 00349944 00349977
00350013 00350067 00350121 00350144 00350160 00350184 00350220 00350247
00350250 00350259 00350262 00350264 00350275 00350310 00350341 00350361
00350431 00350440 00350478 00350479 00350500 00350531 00350675 00350676
00350682 00350749 00350751 00350788 00350803 00350842 00350848 00350880
00350923 00350969 00351061 00351062 00351160 00351172 00351223 00351270
00351279 00351296 00351325 00351343 00351359 00351364 00351421 00351426
00351438 00351448 00351449 00351450 00351455 00351550 00351617 00351622
00351628

Select any dataset

EventIndexO Dataset Report

Collection Name (coll) : data18_13TeV.00350842.physics_Main.merge.AOD.f936_m1972

SelfLink

Action: Report ... input criteria shown in header ... **1 Datasets** meet the

DatasetN…	…W,AMI,EIO Events	GUID_TYPES	EIO Latest Rank	Stat GUID	AMIDate Created (Modified)	EIODate [latency (days)]	DSID
data18_13TeV.0035084…	31623721	StreamAOD StreamRAW	1	1	2018-05-25	2018-05-25 .2	84595

Additional EIO Service butto…

Event Lookup | Event by L…

Start again: EventIndex Dataset Menu | TWiki EventIndexOracle | EIO Case Studies | COMA Portal | Comments / Questions?

2q / 2r / 0s / 1sY / 4.59 / 4.61 / Y

full COMA information about dataset (via remote call to COMA)

EI18.1/00350842: live Help

Cluster by AMI Tag | Cluster by group size | Expand all clusters

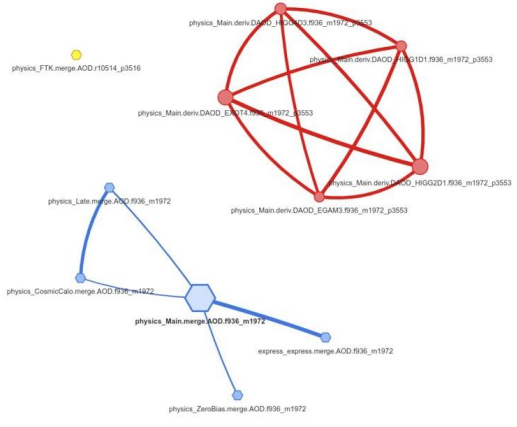
overlap thresholds: 0% 50%

tag level: 99 target: null filter: null unique Recreate

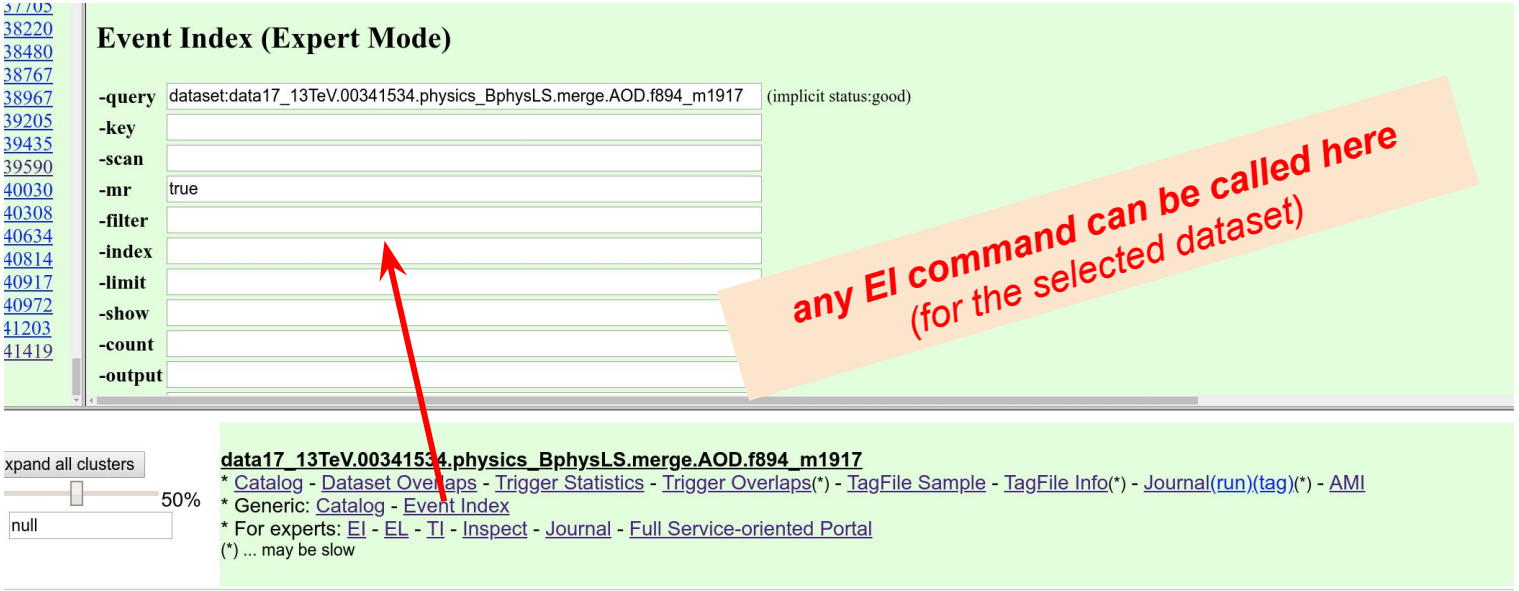
data18_13TeV.00350842.physics_Main.merge.AOD.f936_m1972

* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps - TagFile Sample - TagFile Info(*) - Journal(run)(tag)(*) - AMI(+) -Rucio(+) -COMA(+)
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal

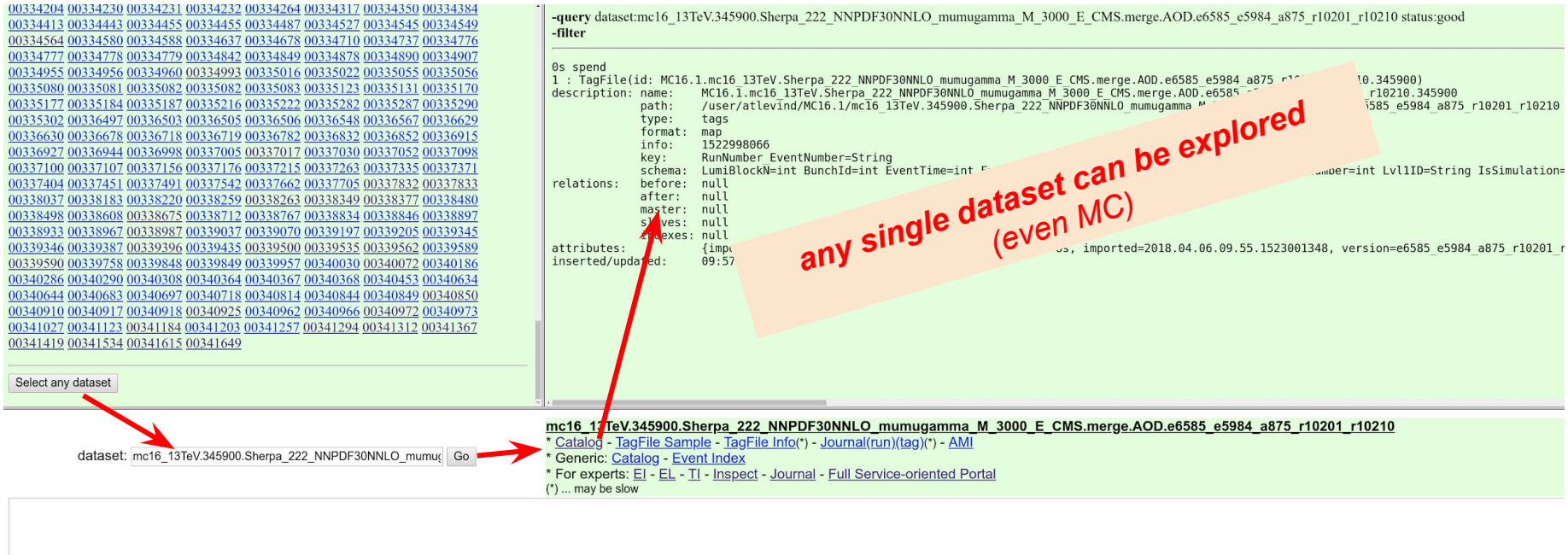
(*) ... may be slow, (+) ... external service



Menu: Generic Event Index



Single Dataset View



most views show command line options to get the same result

Menu: Catalog

-query dataset:data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917 status:good
-filter

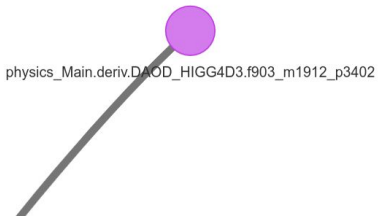
```
0s spend
1 : TagFile(id: EI17.1.data17_13TeV.physics_BphysLS.merge.AOD.f894_m1917.00341534)
description: name:    EI17.1.data17_13TeV.physics_BphysLS.merge.AOD.f894_m1917.00341534
             path:    /user/atlevind/EI17.1/data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m191
             type:    tags
             format:  map
             info:    1512642952
             key:     RunNumber_EventNumber=String
             schema:  LumiBlockN=int BunchId=int EventTime=int EventTimeNanoSe                    mcChannelNumber=int Lvl1ID=String IsSimulation=int
relations:   before:  null
             after:   null
             master:  null
             slaves:  null
             indexes: null
attributes:          {import.keyformat=%08d-%011d, status=good, consumer=os, imported=2017.12.07.13.31.1512649903, version=f894_m1917, streamName=physi
inserted/updated:    13:33:06.512 07/Dec/2017
```

full dataset information from the Catalog

nd all clusters

50%

data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917
* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps(*) - TagFile Sample - TagFile Info(*) - Journal(run)(tag)(*) - AMI
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal
(*) ... may be slow



Menu: Trigger Statistics

to create a PNG view of the table or a trigger occupation histogram

337705
338220
338480
338767
338967
339205
339435
339590
340030
340308
340634
340814
340917
340972
341203
341419

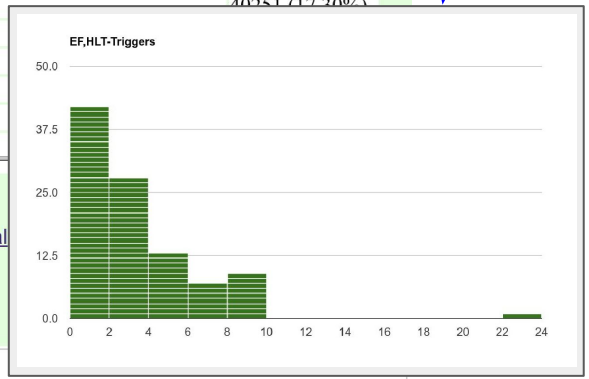
PNG histogram

data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917	evt=232622.0
L1_2MU4	215437 (92.61%)
L1_2MU6	14327 (92.14%)
L1_MU10	9869 (85.92%)
L1_MU11	75133 (75.29%)
L1_2MU10	91628 (39.39%)
L1_MU4_TE40	90049 (38.71%)
L1_MU20	63835 (27.44%)
L1_MU21	61531 (26.45%)
L1_MU4_TE30	30786 (13.23%)
L1_EM12	29696 (12.77%)
L1_MU6	18889 (8.12%)
L1_MU4_TE20	16472 (7.08%)
L1_EM15VH	10655 (4.58%)

trigger statistics table

PNG histogram

data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917	evt=232622.0
HLT_2mu4	213168 (91.64%)
HLT_2mu6_bJpsimumu	212913 (91.53%)
HLT_2mu6	211655 (90.99%)
HLT_mu14	60475 (26.00%)
HLT_mu15_L1MU10	50424 (21.68%)
HLT_mu15	48611 (20.90%)
HLT_mu10_bJpsi_TrkPEB	42242 (18.16%)
HLT_mu16	40251 (17.30%)
HLT_mu4_mu4_idperf_bJpsimumu_noid	
HLT_mu18_L1MU10	
HLT_mu18	
HLT_mu10_bJpsi_TrkPEBmon	
HLT_mu20	



Expand all clusters

50%

er: null

data17_13TeV.00341534.physics_BphysLS.merge.AOD.f894_m1917

* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps(*) - TagFile Sample - TagFile Info(*) - Journal
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal

(*) ... may be slow

physics_Main.deriv.DAOD_HIGG4D3.f903_m1912_p3402

Menu: Trigger Overlaps - phase 1

290
629
915
098
371
833
480
897
345
589
186
634
850
973
367

PNG

data17_13TeV.00341294.physics_MinBias.merge.AOD.f903_m1912
evt=12338461,t3=1.2350338E7

Show Selection ☐ inclusive

HLT_e14_lhtight_nod0	851322 (6.90%)	☑
HLT_e5_lhtight_nod0	5515086 (44.70%)	☑
HLT_e9_lhtight_nod0	1986418 (16.10%)	☐
HLT_larnoiseburst_rerun	12350338 (100.10%)	☑
HLT_mu20_idperf	135718 (1.10%)	
HLT_mu4_nomucomb	349165	
HLT_mu6_idperf		
HLT_mu6_nomucomb		
HLT_tau25_idperf_tracktwo		☐
L1_2EM10VH	(1.00%)	☐
L1_2EM12	148056 (1.20%)	☐
L1_2EM15	74028 (0.60%)	☐
L1_2EM15VH	12338 (0.10%)	☐

Select triggers for trigger overlaps table
(the full table would be too big to show)

data17_13TeV.00341294.physics_MinBias.merge.AOD.f903_m1912
* Catalog - Dataset Overlaps - Trigger Statistics - Trigger Overlaps - TagFile Sample - TagFile Info(*) - Journal(run)(tag)(*) - AMI
* Generic: Catalog - Event Index
* For experts: EI - EL - TI - Inspect - Journal - Full Service-oriented Portal
(*) ... may be slow

Menu: Trigger Overlaps - phase 2

to create a PNG view of the table or a relational graph

00335177 00335184 00335187 00335216 00335222 00335282 00335287 00335290
00335302 00336497 00336503 00336505 00336506 00336548 00336567 00336629
00336630 00336678 00336718 00336719 00336782 00336832 00336852 00336915
00336927 00336944 00336998 00337005 00337017 00337030 00337052 00337098
00337100 00337107 00337156 00337176 00337215 00337263 00337335 00337371
00337404 00337451 00337491 00337542 00337662 00337705 00337832 00337833
00338037 00338183 00338220 00338259 00338263 00338349 00338377 00338480
00338498 00338608 00338675 00338712 00338767 00338834 00338846 00338897
00338933 00338967 00338987 00339037 00339070 00339197 00339205 00339345
00339346 00339387 00339396 00339435 00339500 00339535 00339562 00339589
00339590 00339758 00339848 00339849 00339957 00340030 00340072 00340186
00340286 00340290 00340308 00340364 00340367 00340368 00340453 00340634
00340644 00340683 00340697 00340718 00340814 00340844 00340849 00340850
00340910 00340917 00340918 00340925 00340962 00340966 00340972 00340973
00341027 00341123 00341184 00341203 00341257 00341294 00341312 00341367
00341419 00341534 00341615 00341649

Select any dataset

PNG
Relational Graph

data17_13TeV.00341294.physics_MinBias.merge.AOD.f903_m1912	HLT_e14_lhtight_nod0	HLT_e5_lhtight_nod0	H
evt=12338461,t3=1.2350338E7	**851322** (6.90%)	**5515086** (44.70%)	1
HLT_e14_lhtight_nod0 **851322** (6.90%)	**851322** (6.90%) (851322) 100.00%,100.00%	**851322** (6.90%) (5515086) 100.00%,15.44%	8 (1 1
HLT_e5_lhtight_nod0 **5515086** (44.70%)	**851322** (6.90%) (5515086) 15.44%,100.00%	**5515086** (44.70%) (5515086) 100.00%,100.00%	5 (1 1
HLT_larnoiseburst_rerun **12350338** (100.10%)	**851322** (6.90%) (12350338) 6.89%,100.00%	**5515086** (44.70%) (12350338) 44.66%,100.00%	1 (1 1
HLT_mu20_idperf **135718** (1.10%)	**49352** (0.40%) (937688) 36.36%,5.80%	**74028** (0.60%) (5576776) 54.55%,1.34%	1 (1 1

data17_13TeV.00341294.physics_MinBias.merge.AOD.f903_m1912: live Help

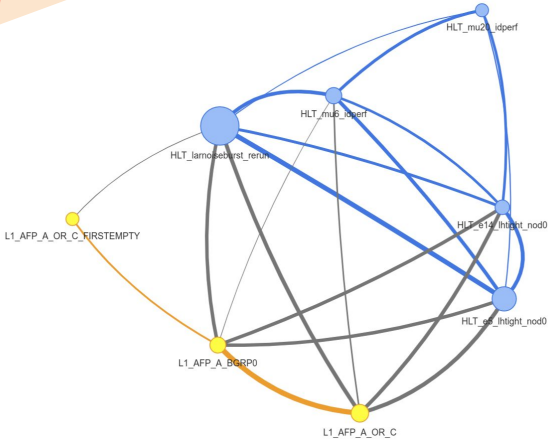
Cluster by L1/HLT | Cluster by group size | Expand all clusters

overlap thresholds: 0% 0%

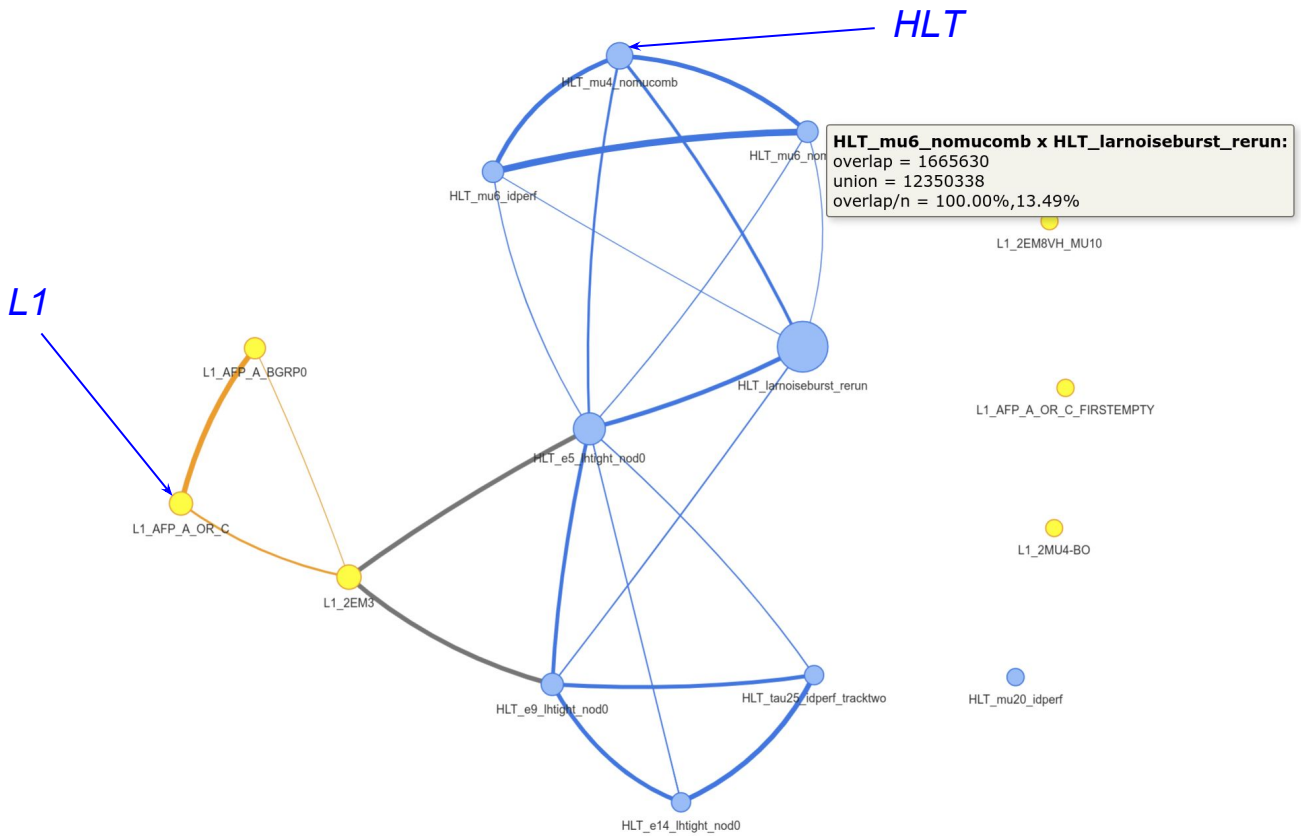
tag level: 99 target: null filter: null

menu will be here.

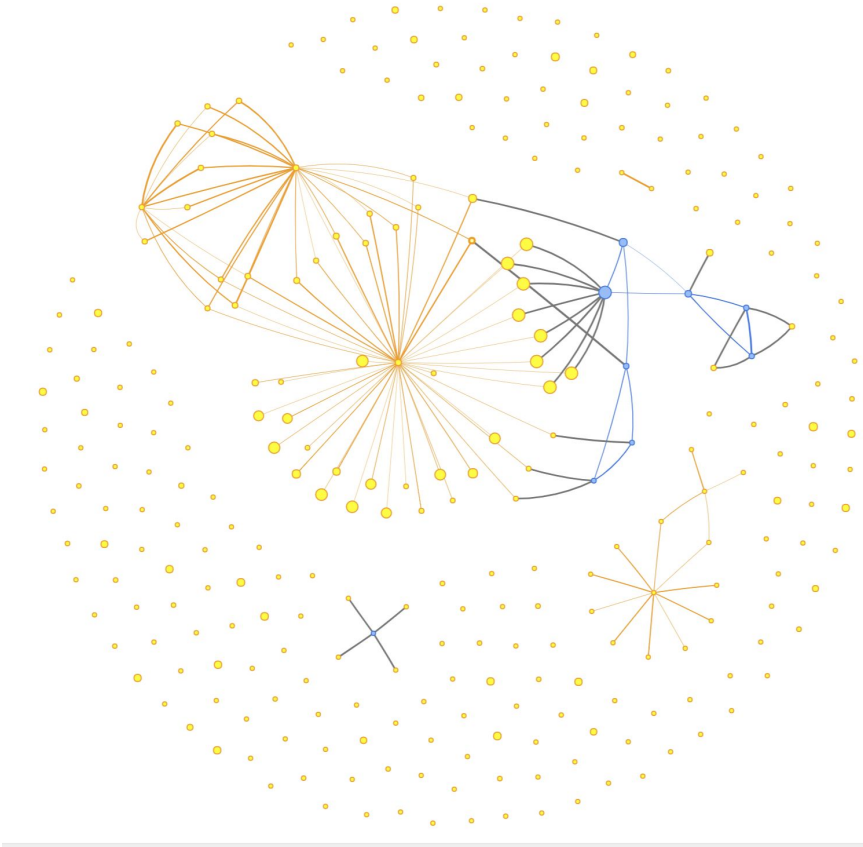
trigger overlaps table & graph (based on subset of events)



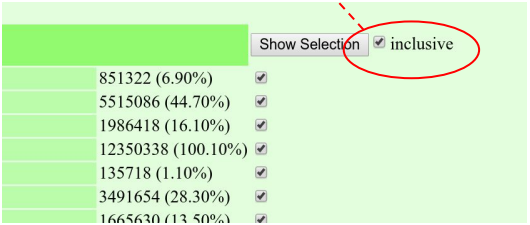
Trigger Overlaps

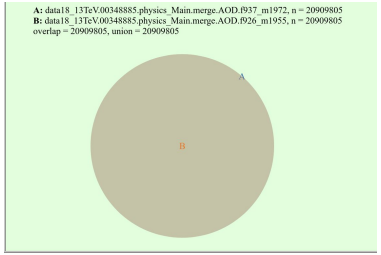


Trigger Overlaps (inclusive)



shows all triggers,
but only overlaps to selected ones

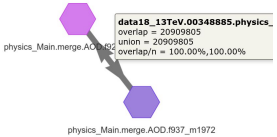


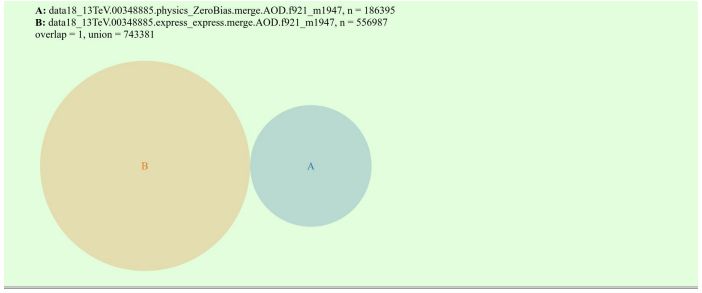


Venn Diagrams

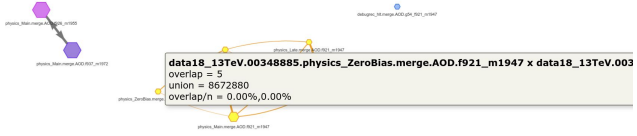
works both for dataset and trigger overlaps

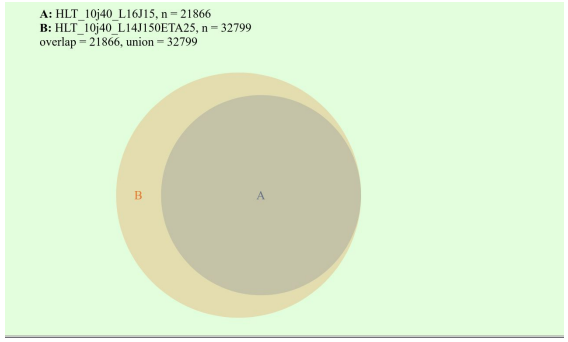
data18_13TeV.00348885.physics_Main.merge.AOD.f937_m1972 x data18_13TeV.00348
Venn Diagram



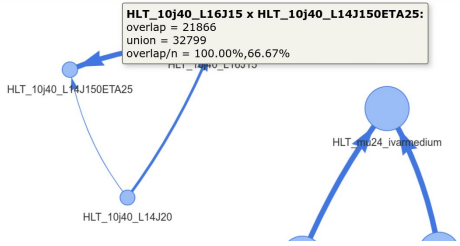


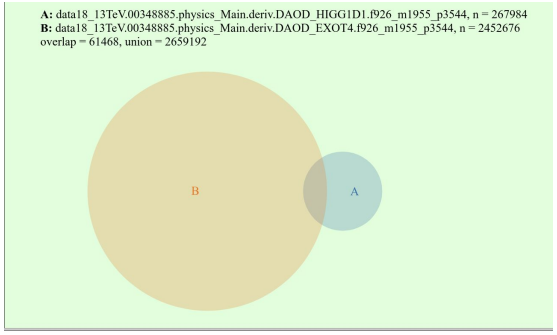
data18_13TeV.00348885.physics_ZeroBias.merge.AOD.f921_m1947 x data18_13TeV.00348885.express_express.merge.AOD.f921_m1947
Venn Diagram



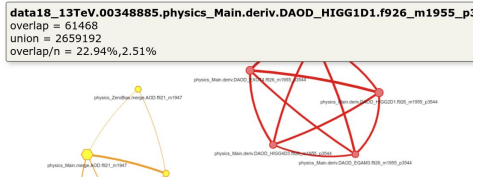


HLT_10j40_L16J15 x HLT_10j40_L14J150ETA25
Venn Diagram

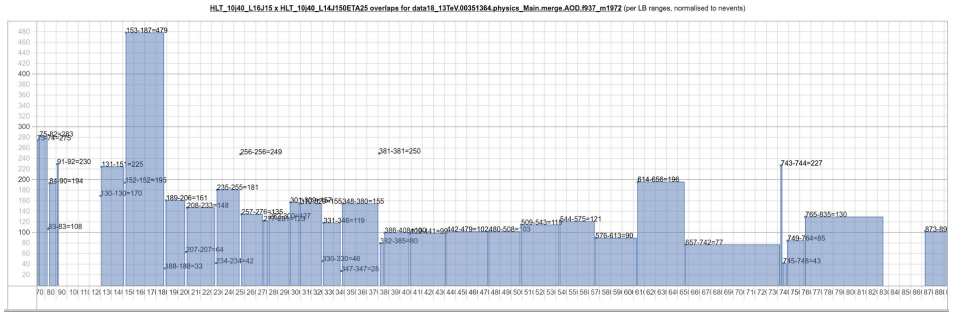




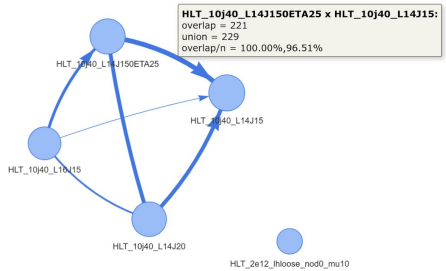
data18_13TeV.00348885.physics_Main.deriv.DAOD_HIGG1D1.f926_m1955_p3544 x data18_13TeV
Venn Diagram

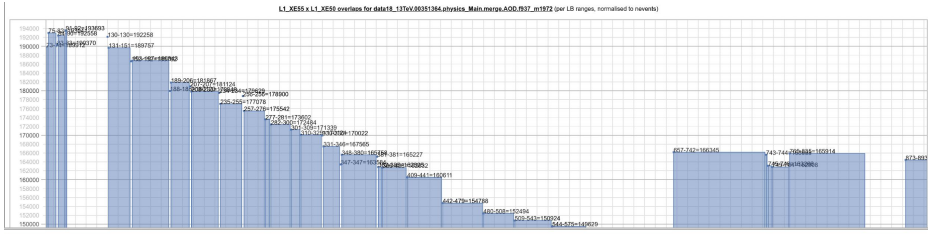


Trigger Overlaps for LB Ranges

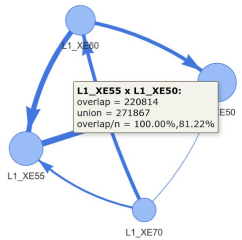


HLT_10j40_L16J15 x HLT_10j40_L14J150ETA25
Venn Diagram - LB Graph





L1_XE55 x L1_XE50
Venn Diagram - LB Graph(*)

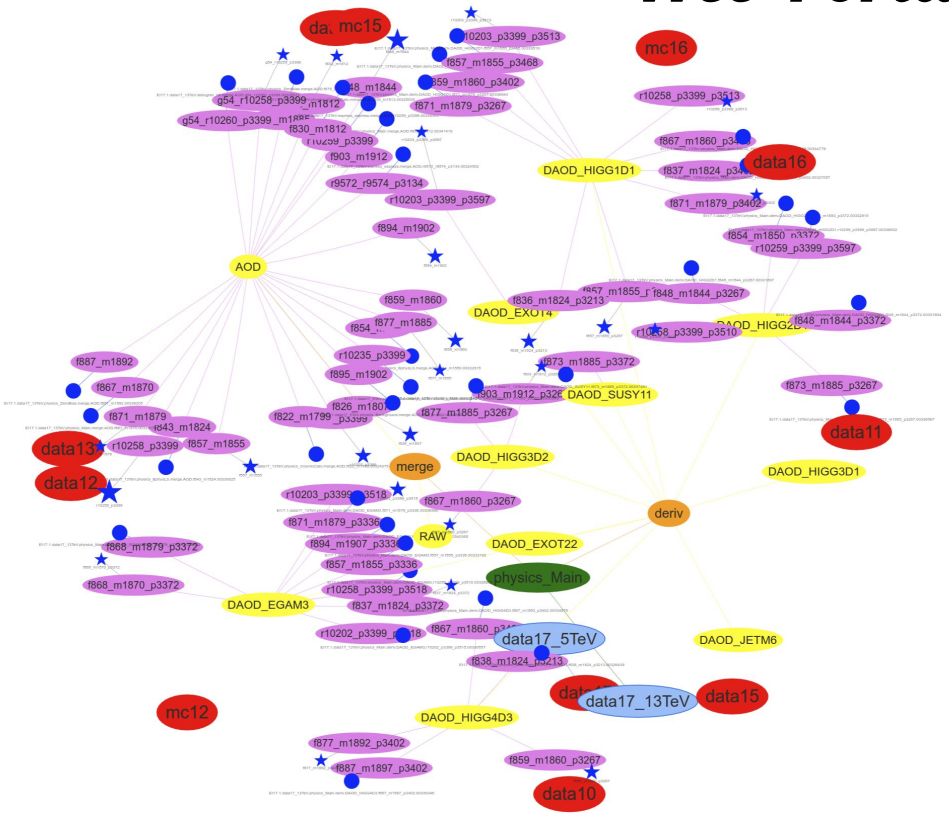


Problem: there is no Atlas service to deliver LB Ranges

More

- Subset of data (only real data, without trigger) also available via ***Oracle***
- R&D for using ***Kudu*** storage
- R&D for using ***Graph Database*** (database based on vertices and edges)
- R&D for generating **multi-overlaps** of datasets/triggers (mathematical problem !)

Preview of a future Fully interactive & graphical Web Portal



Global View of all ATLAS data

under active development

using

Graph Database

Info

Service: https://atlas-event-index.cern.ch (protected by CERN SSO outside CERN)
New Web Service: https://atlas-event-index.cern.ch/EIHadoop

Documentation: https://atlas-event-index.cern.ch/doc
FAQ: https://atlas-event-index.cern.ch/doc/faq