



how to

1. browse an HLT path configuration?

2. monitor an HLT path rate?

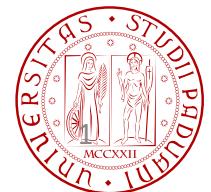
exploiting the database ;)

UTB / UTC

Luca Ciano, **Mia Tosi**, Sandro Ventura
luca.ciano@unipd.it, mia.tosi@cern.ch, sandro.ventura@pd.infn.it

-- Top trigger tutorial --

Oct 2nd, 2013



what is UTB / UTC ?

for the HLT development and analysis the main ingredients are :

- **HLT keys** : configurations, CMSSW release, etc.
- run informations : **run, fill, PS columns, L1 key, HLT key, triggered event, luminosity**, etc.

CMS stores a **lot of information and condition in the database**

- ▶ they can be accessed by querying the database

the structure of the database and the large number of information

make the need of having in place **tools**

which, by aggregating the useful information, help both HLT developers and final users in getting “easily” some of them

- HLT configurations
sequences, objects, thresholds, parameter settings, etc.
- CMSSW release, etc.
- HLT path rate
- HLT path PS used in data taking
- instantaneous luminosity
- number of events taken by specific HLT path

each (group of) need(s) has to be addressed by a specific tool

UTB := Ultimate Trigger Browser → browse a specific HLT path configuration

→ provide the history (through different HLT keys) of a specific HLT path

UTC := Ultimate Trigger Calculator → provide (mainly) measured rates of a specific HLT path

why UTB ? → configuration

What would a user want to know:

- in which is the PD I can find an HLT path ?
- which is the history of the versions of a path ?
- which are the changes among different trigger menu ?
- if I see an unexpected change in rate, which is the source of it ?

the UTB tool comes from the need of book-keeping and taking trace
of the different developments/improvements through different HLT menu versions (history)
but driven by this prior need, it is also a tool which is useful for

- **browsing an HLT path configuration** (“static” configuration in a specific HLT key)
- **comparing different versions** of the same HLT path
- **highlighting which are the differences among different versions** of the same HLT path
- **pointing when and where** (by who) **changes** have been done
- providing information from the stream to the module level

moreover,

UTB is planed to provide the “*google doc*” replacement
“*google doc*” := table where for each luminosity scenario

all HLT paths are listed

w/ their specific and remarkable information

(L1 seed, PSs per column, expected rate, developer(s), POG/PAG request, etc.)

Ultimate Trigger Browser (UTB)

<https://lciano.web.cern.ch/lciano/production/utb/>

user: cmspd

password: cmspd

HLT key

Config	Paths	Modules	GoogleDoc replacement
/cdaq/physics/Run2012/7/e33/v2.5/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.4/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.3/HLT/V3 /cdaq/physics/Run2012/7/e33/v2.3/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.3/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.2/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.2/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.2/HLT/V2 /cdaq/physics/Run2012/7/e33/v2.2/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.1/HLT/V13 /cdaq/physics/Run2012/7/e33/v2.1/HLT/V12	92 Stream A ALCALUMIPIXELS ALCAP0 ALCAPHISYM B Calibration EcalCalibration Express HLTDQM HLTDQMResults	15 Dataset MuOniaParked MultiJet MultiJet1Parked NoBPTX OfflineMonitor OnlineHitMonitor ParkingMonitor PhotonHad SingleElectron SingleMu	40 Path HLT_IsoMu17_eta2p1_CentralPFNoPUJet30 HLT_IsoMu17_eta2p1_CentralPFNoPUJet30_BTglPlter HLT_IsoMu17_eta2p1_DiCentralPFNoPUJet30 HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30 HLT_IsoMu20_eta2p1 HLT_IsoMu20_eta2p1_CentralPFJet80 HLT_IsoMu20_eta2p1_WCandPl80 HLT_IsoMu24 HLT_IsoMu24_CentralPFJet30_CentralPFJet25

browse every HLT paths
used during the data taking
→ it can be used when the confDB browser is down

history of a path
through all the HLT keys used during the data taking

the tool spot differences
w/in the HLT path configuration
by comparing all its constituents
(parameters, modules, sequences)

still under-development
→ the tool can “easily” be adapted to user needs
[feedback are really welcome]

yellow : path version where changes in its definition

red : path version corresponding to selected HLT menu

Candidates ↓
14Eta2p1L1OL2Filtered14Q ↓
ecoSequence
recoNocandSequence
muonTkCandidateSequence
oLocalPixelSequence
SiPixelDigis ↓
SiPixelClusters ↓

Ultimate Trigger Browser (UTB)

<https://lciano.web.cern.ch/lciano/production/utb/>

user: cmspd

password: cmspd

Config	92	Stream	15	Dataset	40	Path	46
/cdaq/physics/Run2012/7/e33/v2.5/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.4/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.3/HLT/V3 /cdaq/physics/Run2012/7/e33/v2.3/HLT/V2 /cdaq/physics/Run2012/7/e33/v2.3/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.2/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.2/HLT/V2 /cdaq/physics/Run2012/7/e33/v2.2/HLT/V2 /cdaq/physics/Run2012/7/e33/v2.2/HLT/V1 /cdaq/physics/Run2012/7/e33/v2.1/HLT/V13 /cdaq/physics/Run2012/7/e33/v2.1/HLT/V12		A ALCALUMPIXELS ALCAP0 ALCAPHISYM B Calibration EcalCalibration Express HLTDQM HLTDQMResults		MuOniaParked MultiJet MultiJetIParked NoBPTX OfflineMonitor OnlineHitMonitor ParkingMonitor PhotonHad SingleElectron SingleMu		HLT_IsoMu17_eta2p1_CentralPFNoPUJet30 HLT_IsoMu17_eta2p1_CentralPFNoPUJet30_BTagIPtter HLT_IsoMu17_eta2p1_DiCentralPFNoPUJet30 HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30 HLT_IsoMu20_eta2p1 HLT_IsoMu20_eta2p1_CentralPFJet80 HLT_IsoMu20_eta2p1_WCandPt80 HLT_IsoMu24 HLT_IsoMu24_CentralPFJet30_CentralPFJet25	

browse every HLT paths used during the data taking

→ it can be used when the confDB browser is down

history of a path

through all the HLT keys used during the data taking

the tool spot differences w/in the HLT path configuration

by comparing all its constituents (parameters, modules, sequences)

still under-development

→ the tool can “easily” be adapted to user needs [feedback are really welcome]

Ultimate Trigger Browser (UTB)

<https://lciano.web.cern.ch/lciano/production/utb/>

user: cmspd

password: cmspd

Filter: %IsoMu17% Filter Starting from 1 Display 21 previous next

Configuration filter: /daq/physics/Run2012% Filter 11 Paths Show ids

HLT_IsoMu17_eta2p1_CentralPFNoPUJet30	HLT_IsoMu17_eta2p1_DiCentralPFNoPUJet30_PFNoPUHT350_PFMHT40	HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_30_20
HLT_IsoMu17_eta2p1_CentralPFNoPUJet30_BTagIPtter	HLT_IsoMu17_eta2p1_LooseIsoPFTau20	HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet45_35_25
HLT_IsoMu17_eta2p1_DiCentralPFJet30_PFHT350_PFMHT40	HLT_IsoMu17_eta2p1_TriCentralPFJet30	HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet50_40_30
HLT_IsoMu17_eta2p1_DiCentralPFNoPUJet30	HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30	

HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30

▼ 3 paths, 9 pathids, 28 configurations

HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v4 <ul style="list-style-type: none"> ◦ 101438 <ul style="list-style-type: none"> ▪ /daq/physics/Run2012/8e33/v2.1/HLT/V1 ◦ 100478 <ul style="list-style-type: none"> ▪ /daq/physics/Run2012/8e33/v2.0/HLT/V2 ▪ /daq/physics/Run2012/8e33/v2.0/HLT/V1 ◦ 99360 <ul style="list-style-type: none"> ▪ /daq/physics/Run2012/8e33/v1.2/HLT/V1 ◦ 98866 <ul style="list-style-type: none"> ▪ /daq/physics/Run2012/8e33/v1.1/HLT/V1 ◦ 97487 <ul style="list-style-type: none"> ▪ /daq/physics/Run2012/8e33/v1.0/HLT/V2 ▪ /daq/physics/Run2012/8e33/v1.0/HLT/V1 ◦ 96260 <ul style="list-style-type: none"> ▪ /daq/physics/Run2012/7e33/v4.2/HLT/V1 	HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v3 <ul style="list-style-type: none"> ◦ 95017 <ul style="list-style-type: none"> ▪ /daq/physics/Run2012/7e33/v4.1/HLT/V1 ▪ /daq/physics/Run2012/7e33/v4.0/HLT/V6 ▪ /daq/physics/Run2012/7e33/v4.0/HLT/V5 ◦ 93500 <ul style="list-style-type: none"> ▪ /daq/physics/Run2012/7e33/v4.0/HLT/V4 ▪ /daq/physics/Run2012/7e33/v4.0/HLT/V3 ▪ /daq/physics/Run2012/7e33/v4.0/HLT/V2 ▪ /daq/physics/Run2012/7e33/v4.0/HLT/V1 	HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v1 <ul style="list-style-type: none"> ◦ 83436 <ul style="list-style-type: none"> ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V13 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V12 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V11 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V10 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V9 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V8 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V7 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V6 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V5 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V4 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V3 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V2 ▪ /daq/physics/Run2012/7e33/v2.1/HLT/V1
--	---	--

▶ 3 streams

▶ 4 datasets

history of the HLT path

through all the HLT keys used during the data taking

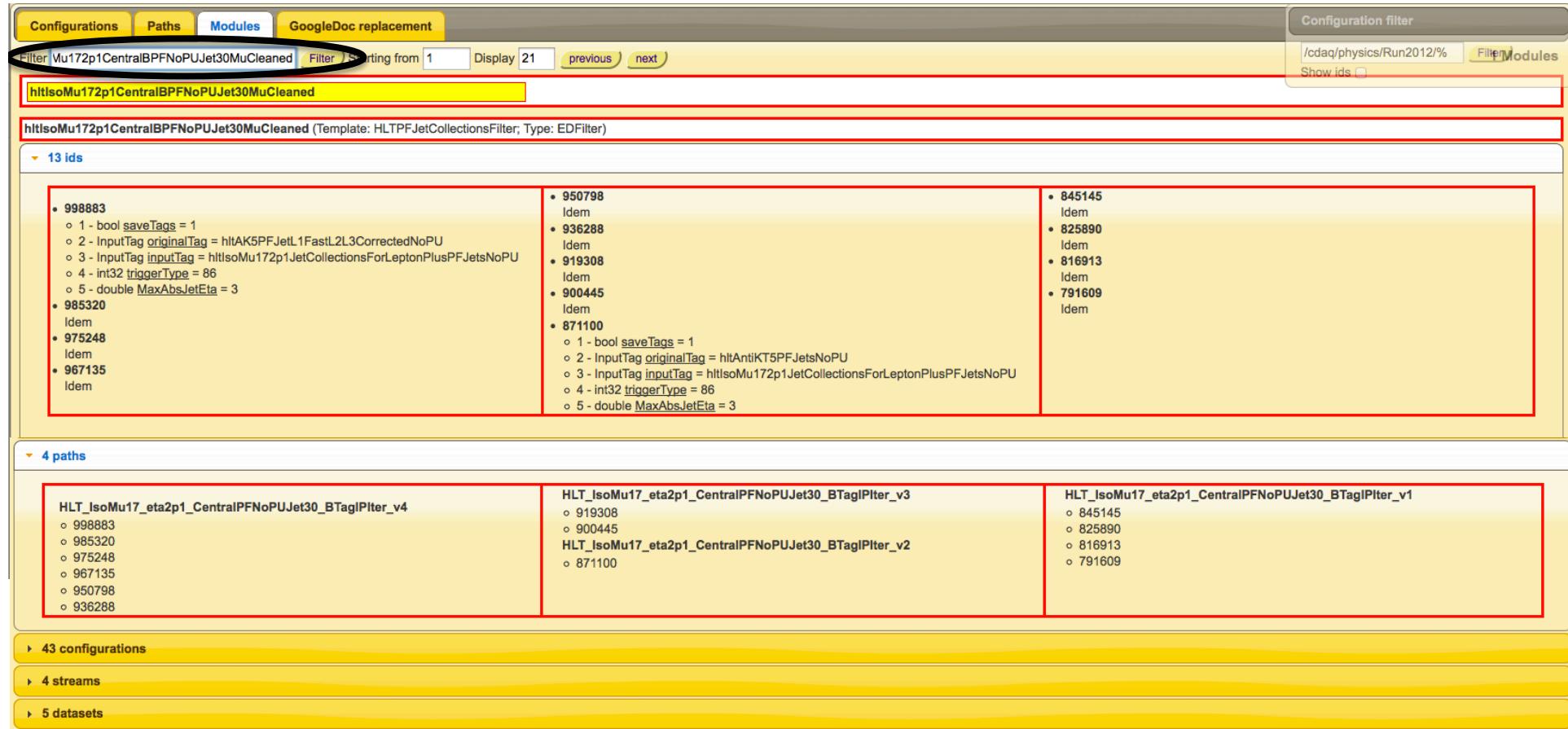
attributes of the HLT path

Ultimate Trigger Browser (UTB)

<https://lciano.web.cern.ch/lciano/production/utb/>

user: cmspd

password: cmspd



The screenshot shows the UTB interface with the following details:

- Search Bar:** Filter: hltIsoMu17p1CentralBPFNoPUJet30MuCleaned
- Results:** hltIsoMu17p1CentralBPFNoPUJet30MuCleaned (Template: HLTPFJetCollectionsFilter; Type: EDFilter)
- Configuration IDs:** 13 ids
 - 998883 (with expanded details: saveTags = 1, originalTag = hltAK5PFJetL1FastL2L3CorrectedNoPU, inputTag = hltIsoMu17p1JetCollectionsForLeptonPlusPFJetsNoPU, triggerType = 86, MaxAbsJetEta = 3)
 - 985320 (Idem)
 - 975248 (Idem)
 - 967135 (Idem)
 - 950798 (with expanded details: saveTags = 1, originalTag = hltAntiKT5PFJetsNoPU, inputTag = hltIsoMu17p1JetCollectionsForLeptonPlusPFJetsNoPU, triggerType = 86, MaxAbsJetEta = 3)
 - 936288 (Idem)
 - 919308 (Idem)
 - 900445 (Idem)
 - 871100 (with expanded details: saveTags = 1, originalTag = hltAntiKT5PFJetsNoPU, inputTag = hltIsoMu17p1JetCollectionsForLeptonPlusPFJetsNoPU, triggerType = 86, MaxAbsJetEta = 3)
 - 845145 (Idem)
 - 825890 (Idem)
 - 816913 (Idem)
 - 791609 (Idem)
- Paths:** 4 paths
 - HLT_IsoMu17_eta2p1_CentralPFNoPUJet30_BTagIPtter_v4 (with items: 998883, 985320, 975248, 967135, 950798, 936288)
 - HLT_IsoMu17_eta2p1_CentralPFNoPUJet30_BTagIPtter_v3 (with items: 919308, 900445)
 - HLT_IsoMu17_eta2p1_CentralPFNoPUJet30_BTagIPtter_v2 (with item: 871100)
 - HLT_IsoMu17_eta2p1_CentralPFNoPUJet30_BTagIPtter_v1 (with items: 845145, 825890, 816913, 791609)
- Other Sections:**
 - 43 configurations
 - 4 streams
 - 5 datasets

history of a specific HLT module configuration
through all the HLT keys used during the data taking



What would a user want to know:

EXAMPLE

<https://lciano.web.cern.ch/lciano/production/utb/> user: cmspd
password: cmspd

which is the history of the versions of a path ?

Configurations Paths Modules GoogleDoc replacement

Filter HLT_Mu12_eta2p1% Filter Starting from 1 Display 21 previous next /cdaq/physics/Run2012% Filter Paths Show ids

HLT_Mu12_eta2p1_DiCentral_20
HLT_Mu12_eta2p1_DiCentral_40_20

HLT_Mu12_eta2p1_DiCentral_40_20_BTagIP3D1stTrack
HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack

HLT_Mu12_eta2p1_L1Mu10erJetC12WdEtaPhi1DiJetsC

HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack

▶ 5 paths, 18 pathids, 92 configurations

▶ 4 streams

▶ 6 datasets

Core

- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v3
 - 87069
- MuHad
 - 80184
 - 78777
 - 77700
 - 77233
- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v2
 - 75667

OnlineMonitor

- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v8
 - 101443
 - 100483
 - 99365
 - 98871
 - 97492
 - 96265
- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7
 - 95022
 - 93505
- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v5
 - 91553
- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v3
 - 89117
 - 87069
 - 85823
- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v2
 - 75667

SingleMu

- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v8
 - 101443
 - 100483
 - 99365
 - 98871
 - 97492
 - 96265
- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7
 - 95022
 - 93505
- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v5
 - 91553
- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v3
 - 89117
 - 87069
 - 85823
 - 83444

Unassigned path

- HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v8
 - 96265

path history

What would a user want to know:

EXAMPLE

<https://lciano.web.cern.ch/lciano/production/utb/> user: cmspd
password: cmspd

which is the history of the versions of a path ?

which are the changes among different trigger menu ?

Configurations Paths Modules GoogleDoc replacement CMSSW_5_2_6_HLT3 - 2012-09-12 13:31 Configuration filter /cdas/physics/Run2012/8e33/v2.1/HLT/V1 /cdas/physics/Run2012/8e33/v2.0/HLT/V2 /cdas/physics/Run2012/8e33/v2.0/HLT/V1 /cdas/physics/Run2012/8e33/v1.2/HLT/V1 /cdas/physics/Run2012/8e33/v1.2/HLT/V1

Config	Stream	Dataset	Path
92 ALCALUMPIXELS	15 MultiJet	41 HLT_IsoMu30_eta2p1	
ALCAP0	MultiJet1Parked	HLT_IsoMu34_eta2p1	
ALCAP1	NoBPTX	HLT_IsoMu40_eta2p1	
	OfflineMonitor	HLT_I2Mu70_2Cha_eta2p1_REMETES	

Pathid 96265 ↓ X Pathid 93505 ↓ X

- HLTriggerSequence
 - hltTriggerType ↓
 - HLTL1UnpackerSequence
 - hltGtDigis ↓
 - hltGctDigis ↓
 - hltL1GtObjectMap ↓
 - hltL1extraParticles ↓
 - HLBeamSpot
 - hltScalersRawToDigi ↓
 - hltOnlineBeamSpot ↓
- hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1OrMu12erOrMu14er ↓
- hltPreMu12eta2p1DiCentral4020DiBTagIP3D1stTrack ↓
- hltL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1OrMu12erOrMu14erL1MuFiltered0Eta2p1 ↓
- HLTL2muonrecoSequence
 - HLTL2muonrecoNocandSequence
 - HLTMuonLocalRecoSequence

HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7 ↓

- Pathid 95022 ↓
- Pathid 93505 ↓

5 - HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v5 ↓

- Pathid 91553 ↓

L1 seed modified

Configuration filter /cdas/physics/Run2012/8e33/v2.1/HLT/V1 /cdas/physics/Run2012/8e33/v2.0/HLT/V2 /cdas/physics/Run2012/8e33/v2.0/HLT/V1 /cdas/physics/Run2012/8e33/v1.2/HLT/V1 /cdas/physics/Run2012/8e33/v1.2/HLT/V1

Config	Stream	Dataset	Path
92 ALCALUMPIXELS	15 MultiJet	41 HLT_IsoMu30_eta2p1	
ALCAP0	MultiJet1Parked	HLT_IsoMu34_eta2p1	
ALCAP1	NoBPTX	HLT_IsoMu40_eta2p1	
	OfflineMonitor	HLT_I2Mu70_2Cha_eta2p1_REMETES	

Pathid 96265 ↓ X Pathid 93505 ↓ X

- HLTriggerSequence
 - hltTriggerType ↓
 - HLTL1UnpackerSequence
 - hltGtDigis ↓
 - hltGctDigis ↓
 - hltL1GtObjectMap ↓
 - hltL1extraParticles ↓
 - HLBeamSpot
 - hltScalersRawToDigi ↓
 - hltOnlineBeamSpot ↓
- hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1OrMu12er ↓
- hltPreMu12eta2p1DiCentral4020DiBTagIP3D1stTrack ↓
- hltL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1OrMu12erL1MuFiltered0Eta2p1 ↓
- HLTL2muonrecoSequence
 - HLTL2muonrecoNocandSequence
 - HLTMuonLocalRecoSequence

HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7 ↓

- Pathid 95022 ↓
- Pathid 93505 ↓

5 - HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v5 ↓

- Pathid 91553 ↓

L1 seed modified

why UTC ? → rate

the UTC has been driven by
the need of monitoring an HLT path behaviour during the data taken

after developing an HLT path and estimating its rate @ a specific (no yet tested) luminosity

what would a HLT developer/user want to know:

- which is the rate of a HLT path ?
- which is the rate vs LS/time/instant luminosity ?
- which is the number of events collected by a HLT path ?
 - and filtered by a -official- json ?
 - and filtered by the request PS=1 ?
- what the corresponding integrated luminosity?
 - and filtered by a -official- json ?
 - and filtered by the request PS=1 ?
- which is the PS of a path ?

features:

- **rates monitoring** (LS granularity)
- **integrated luminosity** (golden json and/or prescale filtering available)
- **multi path** (e.g. all HLT_IsoMu*) and **multi version searches**

Ultimate Trigger Calculator (UTC)

<https://lciano.web.cern.ch/lciano/production/utc/>

actual equivalent json
path search key

HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30

Delivered Online HF Lumi: 13,475.65 pb⁻¹ Recorded Online HF Lumi: 13,188.91 pb⁻¹ Effective Online HF Lumi: 13,188.91 pb⁻¹ Triggers: 1,874,531 HLT PS: 1.00

```
{"HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v1": [{"2,35}]: "193834": [{"2,20}, {22,26}], "193836": [{"2,20}, {19,23}], "193998": [{"2,12}, {19,23}], "193999": [{"2,45}], "194027": [{"57,113}], "194050": [{"53,113}, {116,273}, {275,355}, {357,369}, {372,391}, {394,490}, {492,814}, {1816,1435}, {1437,1735}, {1760,1888}], "194051": [{"2,12}], "1940": [{"2,99}, {102,166}], "194075": [{"48,101}, {103,103}, {105,107}, {109,109}, {111,111}], "194076": [{"2,9}, {11,55}, {158,163}, {165,228}, {230,264}, {267,507}, {509,527}, {530,538}, {541,562}, {565,748}], "194108": [{"81,161}, {164,264}, {266,373}, {376,396}, {398,433}, {436,452}, {454,577}, {579,590}, {593,668}, {161,872}], "194115": [{"66,184}, {186,338}, {340,346}, {348,493}, {496,731}, {819,857}], "194117": [{"2,38}], "194119": [{"2,229}, {232,261}], "194120": [{"2,162}, {165,406}], "194150": [{"42,127}, {129,261}, {264,311}], "194151": [{"47,72}, {75,191}, {193,238}, {241,617}, {619,619}, {621,621}, {623,623}], "194153": [{"2,115}], "194199": [{"96,227}, {229,336}, {339,402}], "194210": [{"3,195}, {198,217}, {220,359}, {361,555}], "194223": [{"61,112}], "194224": [{"2,126}, {129,206}, {208,250}, {253,309}, {312,386}, {389,412}], "194225": [{"2,23}, {26,47}, {49,85}, {88,149}], "HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v3": {"199698": [{"72,94}, {96,127}], "199699": [{"2,154}, {157,169}, {172,410}, {412,756}], "199703": {"12,94}, {197,482}, {485,529}], "199739": {"66,133}], "199751": [{"103,119}, {121,127}], "199752": [{"2,141}, {144,180}, {182,186}, {188,191}, {214,322}], "199753": [{"2,58}], "199754": [{"2,203}, {205,325}, {328,457}, {459,607}, {610,613}, {615,806}, {808,998}], "199804": {"78,88}, {90,181}, {183,235}, {238,278}, {281,290}, {292,519}, {522,575}, {577,628}, {"631,632}], "199812": {"70,141}, {"144,163}, {"182,211}, {"214,214}, {"474,505}, {"508,557}, {"560,571}, {"574,796}], "199832": {"58,62}, {"65,118}, {"121,139}, {"142,286}], "199833": {"2,12}, {"16,103}, {"105,250}, {"253,493}, {"496,794}, {"797,1032}], {"1034,1185}, {"1188,1239}], "199834": {"12,9}, {"11,11}, {"14,18}, {"21,54}, {"56,57}, {"62,65}, {"69,284}, {"286,503}, {"505,942}], "199862": {"59,141}], "199864": {"2,87}, {"89,89}, {"92,103}, {"106,372}, {"174,385}, {"188,486}], "199865": {"2,134}, {"136,172}, {"174,218}, {"221,320}], "199868": {"2,21}, {"199875": {"70,150}, {"152,334}], "199876": {"12,19}, {"22,95}, {"97,249}, {"252,272}, {"274,340}, {"343,362}, {"365,376}], "199877": {"2,173}, {"175,605}, {"1607,701}, {"703,871}], "199960": {"72,139}, {"141,197}, {"204,232}, {"235,363}, {"365,367}, {"370,380}, {"383,459}, {"461,466}, {"469,484}], "199961": {"2,211}, {"213,287}], "199967": {"60,120}], "Cert_160404-163869_7TeV_May10ReReco_Collisions11_JSON_v3.txt": "", "Cert_160404-180252_7TeV_ReRecoNov08_Collisions11_JSON_v2.txt": "", "Cert_170249-172619_7TeV_ReReco5Aug_Collisions11_JSON_v3.txt": "", "Cert_170722-177515_7TeV_ReReco15Nov_HiggsCert_Collisions11_JSON.txt": "", "Cert_190456-195531_8TeV_08Jun2012ReReco_Collisions12_JSON_v2.txt": "", "Cert_190456-195531_8TeV_08Jun2012ReReco_Collisions12_JSON.txt": "", "Cert_190782-190949_8TeV_06Aug2012ReReco_Collisions12_JSON.txt": "", "Cert_190782-190949_8TeV_06Aug2012ReReco-recover_Collisions12_JSON.txt": "", "Cert_190782-190949_8TeV_06Aug2012ReReco-recover_Collisions12_JSON.txt": "", "Cert_190782-190949_8TeV_06Aug2012ReReco-recover_Collisions12_JSON.txt": "", "Cert_190822-198523_8TeV_24Aug2012ReReco_Collisions12_JSON.txt": "", "Cert_160404-180252_7TeV_PromptReco_Collisions11_JSON.txt": "", "Cert_190456-196531_8TeV_29Jun2012ReReco_Collisions12_JSON.txt": "", "Cert_190456-196531_8TeV_29Jun2012ReReco_Collisions12_JSON.txt": "", "Cert_190456-208686_8TeV_22Jan2013ReReco_Collisions12_JSON.txt": "", "Cert_190456-208686_8TeV_22Jan2013ReReco_Collisions12_JSON.txt": "", "Cert_190456-208686_8TeV_PromptReco_Collisions12_JSON.txt": ""}
```

Plots	Path name	Run	Avg. rate (Hz)	Max rate (Hz)	Instant Lumi (pb ⁻¹)	Delivered Online HF Lumi (pb ⁻¹)	Recorded Online HF Lumi (pb ⁻¹)	Effective Online HF Lumi (pb ⁻¹)	#Triggers	HLT PS
plot HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v1	193834-194225		0.32	1.33	5.53	573.46	564.25	564.25	75,404	1.00
plot HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v3	199698-202504		0.43	1.84	7.41	5,130.59	5,038.03	5,038.03	718,181	1.00
plot HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v4	202972-208686		0.45	2.23	7.53	7,721.61	7,586.64	7,586.64	1,080,946	1.00

Cert_190456-208686_8TeV_22Jan2013ReReco_Collisions12_JSON.txt

aggregated view
still under-development

the official/private good run list (json file)
the tool can “easily” be adapted to user needs

path PS
[feedback are really welcome]

this tool

- allows to **monitor the behaviour of a HLT path** through the data taking period

one can also apply selections based on

- provides

run range of running

average and max rate

instantaneous luminosity

integrated luminosity [HF measurement]

number of triggered events

average PS

granularity down to 1 LS [here shown the aggregated view ;)]

11



Ultimate Trigger Calculator (UTC)

<https://lciano.web.cern.ch/lciano/production/utc/>

actual equivalent json

path search key

Trigger	HLT PS	Delivered Online HF Lumi (pb^{-1})	Recorded Online HF Lumi (pb^{-1})	Effective Online HF Lumi (pb^{-1})	Triggers
HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v1	1.00	13,455.65	13,188.91	13,188.91	1,874,531
HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v3	1.00	13,455.65	13,188.91	13,188.91	1,874,531
HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v4	1.00	13,455.65	13,188.91	13,188.91	1,874,531

Cert	Description
Cert_160404-163869_7TeV_May10ReReco_Collisions11_JSON_v3.txt	Cert_160404-163869_7TeV_May10ReReco_Collisions11_JSON_v3.txt
Cert_170722-177515_7TeV_ReReco15Nov_HiggsCert_Collisions11_JSON.txt	Cert_170722-177515_7TeV_ReReco15Nov_HiggsCert_Collisions11_JSON.txt
Cert_190456-196531_8TeV_13Jul2012ReReco_Collisions12_JSON_v2.txt	Cert_190456-196531_8TeV_13Jul2012ReReco_Collisions12_JSON_v2.txt
Cert_190782-190949_8TeV_06Aug2012ReReco_Collisions12_JSON.txt	Cert_190782-190949_8TeV_06Aug2012ReReco_Collisions12_JSON.txt
Cert_190782-190949_8TeV_May23ReReco_Collisions12_JSON_v2.txt	Cert_190782-190949_8TeV_May23ReReco_Collisions12_JSON_v2.txt
Cert_207883-208307_8TeV_16Jan2013ReReco_Collisions12_JSON.txt	Cert_207883-208307_8TeV_16Jan2013ReReco_Collisions12_JSON.txt
Cert_160404-180252_7TeV_ReRecoNov08_Collisions11_JSON_v2.txt	Cert_160404-180252_7TeV_ReRecoNov08_Collisions11_JSON_v2.txt
Cert_190456-195530_8TeV_08Jun2012ReReco_Collisions12_JSON.txt	Cert_190456-195530_8TeV_08Jun2012ReReco_Collisions12_JSON.txt
Cert_190456-203742_8TeV_22Jan2013ReReco_Collisions12_JSON.txt	Cert_190456-203742_8TeV_22Jan2013ReReco_Collisions12_JSON.txt
Cert_190782-190949_8TeV_08Jun2012ReReco-recover_Collisions12_JSON.txt	Cert_190782-190949_8TeV_08Jun2012ReReco-recover_Collisions12_JSON.txt
Cert_198022-198523_8TeV_24Aug2012ReReco_Collisions12_JSON.txt	Cert_198022-198523_8TeV_24Aug2012ReReco_Collisions12_JSON.txt
Cert_160404-180252_7TeV_PromptReco_Collisions11_JSON.txt	Cert_160404-180252_7TeV_PromptReco_Collisions11_JSON.txt
Cert_170249-172619_7TeV_ReReco5Aug_Collisions11_JSON_v3.txt	Cert_170249-172619_7TeV_ReReco5Aug_Collisions11_JSON_v3.txt
Cert_190456-196531_8TeV_29Jun2012ReReco_Collisions12_JSON.txt	Cert_190456-196531_8TeV_29Jun2012ReReco_Collisions12_JSON.txt
Cert_190456-208686_8TeV_22Jan2013ReReco_Collisions12_JSON.txt	Cert_190456-208686_8TeV_22Jan2013ReReco_Collisions12_JSON.txt
Cert_190782-190949_8TeV_29Jun2012ReReco-recover_Collisions12_JSON.txt	Cert_190782-190949_8TeV_29Jun2012ReReco-recover_Collisions12_JSON.txt
Cert_201191-201191_8TeV_11Dec2012ReReco-recover_Collisions12_JSON.txt	Cert_201191-201191_8TeV_11Dec2012ReReco-recover_Collisions12_JSON.txt
Cert_190456-208686_8TeV_PromptReco_Collisions12_JSON.txt	Cert_190456-208686_8TeV_PromptReco_Collisions12_JSON.txt

Plots	Path name	Run	Avg. rate (Hz)	Max rate (Hz)	Instant Lumi (pb^{-1})	Delivered Online HF Lumi (pb^{-1})	Recorded Online HF Lumi (pb^{-1})	Effective Online HF Lumi (pb^{-1})	#Triggers	HLT PS
plot_HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v1	193834-194225		0.32	1.33	5.53	573.46	564.25	564.25	75,404	1.00
plot_HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v3	199698-202504		0.43	1.84	7.41	5,130.59	5,038.03	5,038.03	718,181	1.00
plot_HLT_IsoMu17_eta2p1_TriCentralPFNoPUJet30_v4	202972-208686		0.45	2.23	7.53	7,721.61	7,586.64	7,586.64	1,080,946	1.00

Cert_190456-208686_8TeV_22Jan2013ReReco_Collisions12_JSON.txt

aggregated view

the json shown on UTC is the “logic AND” among the (possible) input json and the other selections

→ if you specify “consider only PS = 1”,
it will give you the list of LS where the chosen HLT path was run w/ only PS = 1 ;)

What would a user want to know:

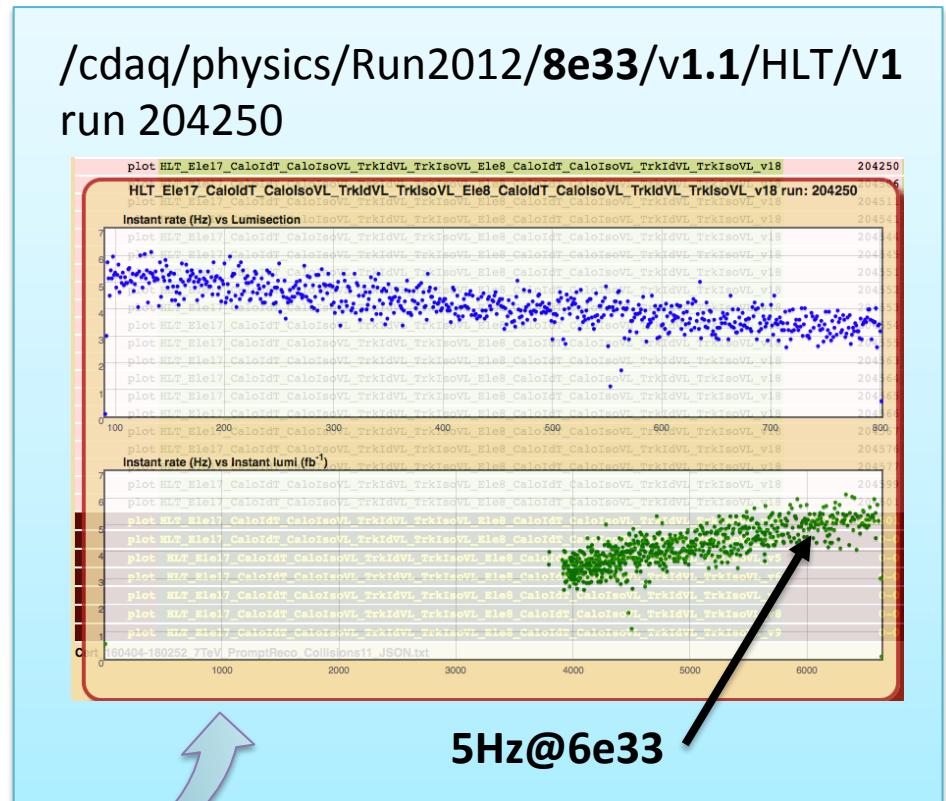
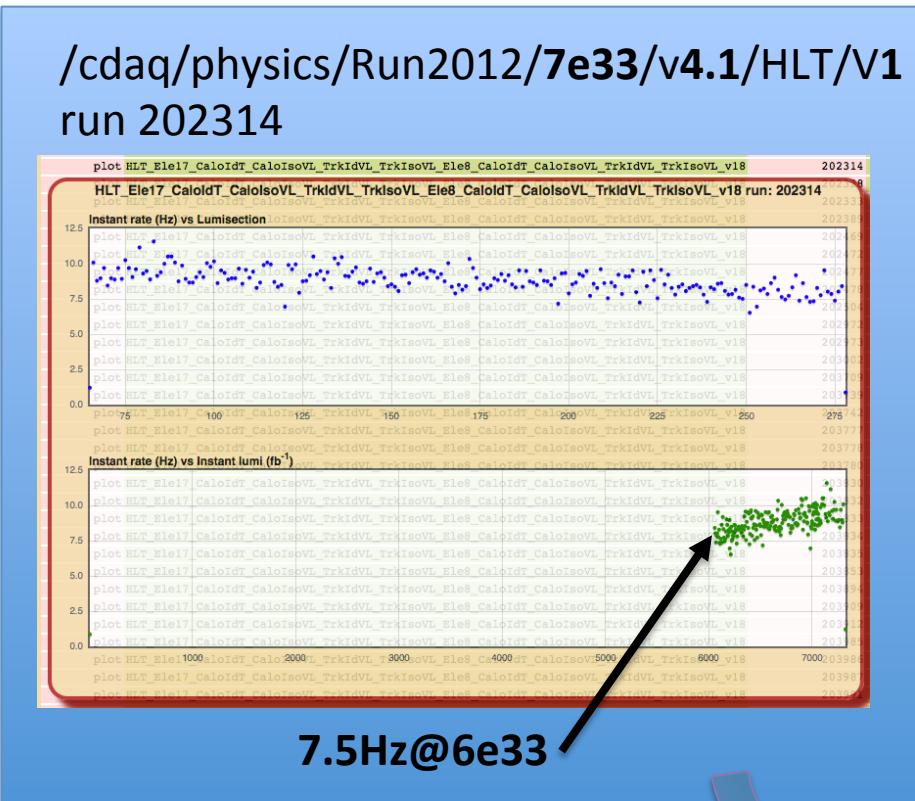
EXAMPLE

<https://lciano.web.cern.ch/lciano/production/utc/>

If I see an unexpected change in rate, which is the source of it?

Higgs trigger

HLT_Ele17_CaloIdT_CaloIsoVL_TrkIdVL_TrkIsoVL_Ele8_CaloIdT_CaloIsoVL_TrkIdVL_TrkIsoVL has ~20-30% of trigger rate less than expected



8e33 Menu

EXAMPLE

<https://lciano.web.cern.ch/lciano/production/utb/>

user: cmspd

password: cmspd

Config	92	Stream	15	Dataset	40	Path
/daq/physics/Run2012/8e33/v2.1/HLT/V1 /daq/physics/Run2012/8e33/v2.0/HLT/V2 /daq/physics/Run2012/8e33/v2.0/HLT/V1 /daq/physics/Run2012/8e33/v1.2/HLT/V1 /daq/physics/Run2012/8e33/v1.1/HLT/V1 /daq/physics/Run2012/8e33/v1.0/HLT/V2 /daq/physics/Run2012/8e33/v1.0/HLT/V1 /daq/physics/Run2012/7e33/v4.2/HLT/V1 /daq/physics/Run2012/7e33/v4.1/HLT/V1 /daq/physics/Run2012/7e33/v4.0/HLT/V6		A ALCALUMIPIXELS ALCAP0 ALCAPHISYM B Calibration DQM EcalCalibration Express HLTDQM		BJetPlusX BTag Commissioning Cosmics DoubleElectron DoubleMu DoubleMuParked DoublePhoton DoublePhotonHighPt ElectronHad		HLT_Doub HLT_Ele15 HLT_Ele17 HLT_Ele17 HLT_Ele17 HLT_Ele17 HLT_Ele17 HLT_Ele17 HLT_Ele20 HLT_Ele23 HLT_Ele27
CMSSW_5_2_6_HLT2 2012-08-07 09:35						
HLT_Ele17_CaloIdT_CaloIsoVL_TrkIdVL_TrkIsoVL_Ele8_CaloIdT_CaloIsoVL_TrkIdVL_TrkIsoVL 19 - HLT_Ele17_CaloIdT_CaloIsoVL_TrkIdVL_TrkIsoVL_Ele8_CaloIdT_CaloIsoVL_TrkIdVL_TrkIsoVL_v19 <ul style="list-style-type: none"> • Pathid 101368 ↓ • Pathid 100408 ↓ • Pathid 99296 ↓ 18 - HLT_Ele17_CaloIdT_CaloIsoVL_TrkIdVL_TrkIsoVL_Ele8_CaloIdT_CaloIsoVL_TrkIdVL_TrkIsoVL_v18 <ul style="list-style-type: none"> • Pathid 98802 ↓ /daq/physics/Run2012/8e33/v1.1/HLT/V1 • Pathid 97423 ↓ CMSSW_5_2_7 • Pathid 96203 ↓ • Pathid 94960 ↓ /daq/physics/Run2012/7e33/v4.1/HLT/V1 • Pathid 93443 ↓ CMSSW_5_2_6_HLT2 • Pathid 91346 ↓ 						
Pathid 99296 <ul style="list-style-type: none"> • HLTBeginSequence <ul style="list-style-type: none"> ◦ <i>hltTriggerType</i> ↓ ◦ HLT1Unpackers <ul style="list-style-type: none"> ▪ <i>hltGtDigis</i> ↓ ▪ <i>hltGctPf</i> ↓ ▪ <i>hltL1sL1DoubleEG137</i> ↓ ▪ <i>hltPreEle17CaloIdTCaloIsoVLTrkIdVLTrkIsoVLE</i> ↓ ◦ <i>hltRawToDigi</i> ↓ ◦ <i>hltOnlineBeamSpot</i> ↓ ◦ <i>hltL1sL1DoubleEG137</i> ↓ ◦ <i>hltESRawToDigi</i> ↓ ◦ <i>hltOnlineBeamSpot</i> ↓ ◦ <i>hltL1sL1DoubleEG137</i> ↓ ◦ <i>hltPreEle17CaloIdTCaloIsoVLTrkIdVLTrkIsoVLE</i> ↓ • HLTEle17CaloIdTTrkIdVLCaloIsoVLTrkIsoVLE <ul style="list-style-type: none"> ◦ HLTDoRegionalEgammaEcalSequence <ul style="list-style-type: none"> ▪ <i>hltESRawToRecHitFacility</i> ↓ ▪ <i>hltEcalRawToRecHitFacility</i> ↓ ▪ <i>hltEcalRegionalEgammaFEDs</i> ↓ 						

no changes are spotted w/in the configuration itself
the difference comes from CMSSW release



BACKUP

What's the UTC/UTB

Technical details

- query to specific tables of the CMS database
 - presently only production menu under /cdaq/physics/Run2010-1-2/
 - ➡ no /users/ development area, as now
- Luca organized some dedicated database tables [thanks to DT] reorganizing the information for UTB ;), because they need recursive query
 - ➡ average response time from ~O(minutes) to ~O(seconds)
- all the available information comes from
 - CMS database
 - ➡ reported luminosity is the RAW one [we might apply the lumiCalc2]
 - official json

What would a user want to know:

which is the history of the versions of a path ?

Configurations Paths Modules GoogleDoc replacement Configuration filter

Filter HLT_Mu12_eta2p1% Filter Starting from 1 Display 21 previous next /daq/physics/Run2012% Filter Paths Show ids □

HLT_Mu12_eta2p1_DiCentral_20	HLT_Mu12_eta2p1_DiCentral_40_20_BTAGIP3D1stTrack	HLT_Mu12_eta2p1_L1Mu10erJetC12WdEtaPhiDiJetsC
HLT_Mu12_eta2p1_DiCentral_40_20	HLT_Mu12_eta2p1_DiCentral_40_20_DIBTAGIP3D1stTrack	

HLT_Mu12_eta2p1_DiCentral_40_20_DIBTAGIP3D1stTrack

▼ 5 paths, 18 pathids, 92 configurations

HLT_Mu12_eta2p1_DiCentral_40_20_DIBTAGIP3D1stTrack_v8 o 101443 ■ /daq/physics/Run2012/8e33/v2.1/HLT/V1 o 100483 ■ /daq/physics/Run2012/8e33/v2.0/HLT/V2 ■ /daq/physics/Run2012/8e33/v2.0/HLT/V1 o 99365 ■ /daq/physics/Run2012/8e33/v1.2/HLT/V1 o 98871 ■ /daq/physics/Run2012/8e33/v1.1/HLT/V1 o 97492 ■ /daq/physics/Run2012/8e33/v1.0/HLT/V2 ■ /daq/physics/Run2012/8e33/v1.0/HLT/V1 o 96265 ■ /daq/physics/Run2012/7e33/v4.2/HLT/V1 HLT_Mu12_eta2p1_DiCentral_40_20_DIBTAGIP3D1stTrack_v7 o 95022 ■ /daq/physics/Run2012/7e33/v4.1/HLT/V1 ■ /daq/physics/Run2012/7e33/v4.0/HLT/V6 ■ /daq/physics/Run2012/7e33/v4.0/HLT/V5 o 93505 ■ /daq/physics/Run2012/7e33/v4.0/HLT/V4 ■ /daq/physics/Run2012/7e33/v4.0/HLT/V3 ■ /daq/physics/Run2012/7e33/v4.0/HLT/V2 ■ /daq/physics/Run2012/7e33/v4.0/HLT/V1 HLT_Mu12_eta2p1_DiCentral_40_20_DIBTAGIP3D1stTrack_v6 o 91553 ■ /daq/physics/Run2012/7e33/v3.1/HLT/V2 ■ /daq/physics/Run2012/7e33/v3.1/HLT/V1 ■ /daq/physics/Run2012/7e33/v3.0/HLT/V5 ■ /daq/physics/Run2012/7e33/v3.0/HLT/V4 ■ /daq/physics/Run2012/7e33/v3.0/HLT/V3 ■ /daq/physics/Run2012/7e33/v3.0/HLT/V2 ■ /daq/physics/Run2012/7e33/v3.0/HLT/V1	HLT_Mu12_eta2p1_DiCentral_40_20_DIBTAGIP3D1stTrack_v3 o 89117 ■ /daq/physics/Run2012/7e33/v2.5/HLT/V1 o 87069 ■ /daq/physics/Run2012/7e33/v2.4/HLT/V1 ■ /daq/physics/Run2012/7e33/v2.3/HLT/V3 ■ /daq/physics/Run2012/7e33/v2.3/HLT/V2 ■ /daq/physics/Run2012/7e33/v2.3/HLT/V1 o 85823 ■ /daq/physics/Run2012/7e33/v2.2/HLT/V3 ■ /daq/physics/Run2012/7e33/v2.2/HLT/V2 ■ /daq/physics/Run2012/7e33/v2.2/HLT/V1 o 83444 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V13 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V12 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V11 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V10 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V9 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V8 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V7 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V6 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V5 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V4 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V3 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V2 ■ /daq/physics/Run2012/7e33/v2.1/HLT/V1 o 80184 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V21 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V20 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V19 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V17 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V16 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V18 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V17 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V16 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V15 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V14 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V13 ■ /daq/physics/Run2012/5e33/v4.16/HLT/V12	HLT_Mu12_eta2p1_DiCentral_40_20_DIBTAGIP3D1stTrack_v2 o 75667 ■ /daq/physics/Run2012/5e33/v4.8/HLT/V1 ■ /daq/physics/Run2012/5e33/v4.7/HLT/V1 ■ /daq/physics/Run2012/5e33/v4.6/HLT/V5 ■ /daq/physics/Run2012/5e33/v4.6/HLT/V4 ■ /daq/physics/Run2012/5e33/v4.6/HLT/V3 ■ /daq/physics/Run2012/5e33/v4.6/HLT/V2 ■ /daq/physics/Run2012/5e33/v4.6/HLT/V1 ■ /daq/physics/Run2012/5e33/v4.5/HLT/V3 ■ /daq/physics/Run2012/5e33/v4.5/HLT/V2 ■ /daq/physics/Run2012/5e33/v4.5/HLT/V1 ■ /daq/physics/Run2012/5e33/v4.4/HLT/V7 ■ /daq/physics/Run2012/5e33/v4.4/HLT/V6 ■ /daq/physics/Run2012/5e33/v4.4/HLT/V5 ■ /daq/physics/Run2012/5e33/v4.4/HLT/V4 ■ /daq/physics/Run2012/5e33/v4.4/HLT/V3 ■ /daq/physics/Run2012/5e33/v4.4/HLT/V2 ■ /daq/physics/Run2012/5e33/v4.4/HLT/V1
--	---	---

Path history

some screenshots: UTB

Configurations Paths Modules GoogleDoc replacement Configuration filter

Filter hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1 | hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1 | hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1

Show ids □

/odaq/physics/Run2012% □ Modules

hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1OrMu12erOrMu14er (Template: HLTLevel1GTSeed; Type: EDFilter)

▼ 6 ids

• 999256 <ul style="list-style-type: none"> ◦ 1 - string L1SeedsLogicalExpression = "L1_Mu10er_JetC12_WdEtaPhi1_DoubleJetC_20_12 OR L1_Mu10er_JetC32 OR L1_Mu10er_JetC12_WdEtaPhi1_DoubleJetC_32_12 OR L1_SingleMu12er OR L1_SingleMu14er" ◦ 2 - InputTag L1MuonCollectionTag = hltL1extraParticles ◦ 3 - InputTag L1GtReadoutRecordTag = hltGtDigis ◦ 4 - InputTag L1CollectionsTag = hltL1extraParticles ◦ 5 - InputTag L1GtObjectMapTag = hltL1GtObjectMap 	• 985693 <ul style="list-style-type: none"> Idem 	• 936627 <ul style="list-style-type: none"> Idem
---	---	---

▶ 11 paths

▶ 8 configurations

▶ 3 streams

▶ 4 datasets

some screenshots: UTB

Configurations Paths Modules GoogleDoc replacement

Filter hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1 | Starting from 1 Display 21 previous next

/daq/physics/Run2012% Filter Modules Show ids

hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1 | hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr10 | hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1C

hltL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1OrMu12erOrMu14er (Template: HLTLevel1GTSeed; Type: EDFilter)

▶ 6 ids

▼ 11 paths

HLT_Mu12_eta2p1_DiCentral_20_v8 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627	HLT_Mu12_eta2p1_L1Mu10erJetC12WdEtaPhi1DiJetsC_v7 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627	HLT_Mu15_eta2p1_TriCentral_40_20_20_v8 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627
HLT_Mu12_eta2p1_DiCentral_40_20_v8 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627	HLT_Mu15_eta2p1_DiCentral_20_v1 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627	HLT_Mu15_eta2p1_TriCentral_40_20_20_BTagIP3D1stTrack_v8 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627
HLT_Mu12_eta2p1_DiCentral_40_20_BTagIP3D1stTrack_v8 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627	HLT_Mu15_eta2p1_DiCentral_40_20_v1 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627	HLT_Mu15_eta2p1_TriCentral_40_20_20_DiBTagIP3D1stTrack_v8 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627
HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v8 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627	HLT_Mu15_eta2p1_L1Mu10erJetC12WdEtaPhi1DiJetsC_v3 o 999256 o 985693 o 975621 o 967510 o 951173 o 936627	

some screenshots: UTB

The screenshot shows a web-based interface for managing CMS detector configurations. The top navigation bar includes tabs for 'Configurations', 'Paths', 'Modules' (which is selected), and 'GoogleDoc replacement'. A search bar at the top left allows filtering by text like 'hitL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1'. Below the search are buttons for 'Filter', 'Starting from 1', 'Display 21', and navigation links 'previous' and 'next'.

The main content area displays a list of module paths. Some entries are highlighted with red boxes:

- hitL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1**
- hitL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr10**
- hitL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr10 (Template: HLTLevel1GTSeed; Type: EDFilter)**
- hitL1sL1Mu10erJetC20JetC12Corr1OrL1Mu10erJetC32OrMu10erJetC32JetC12Corr1OrMu12erOrMu14er (Template: HLTLevel1GTSeed; Type: EDFilter)**

Below the list, there are summary sections for '6 ids', '11 paths', and '8 configurations'.

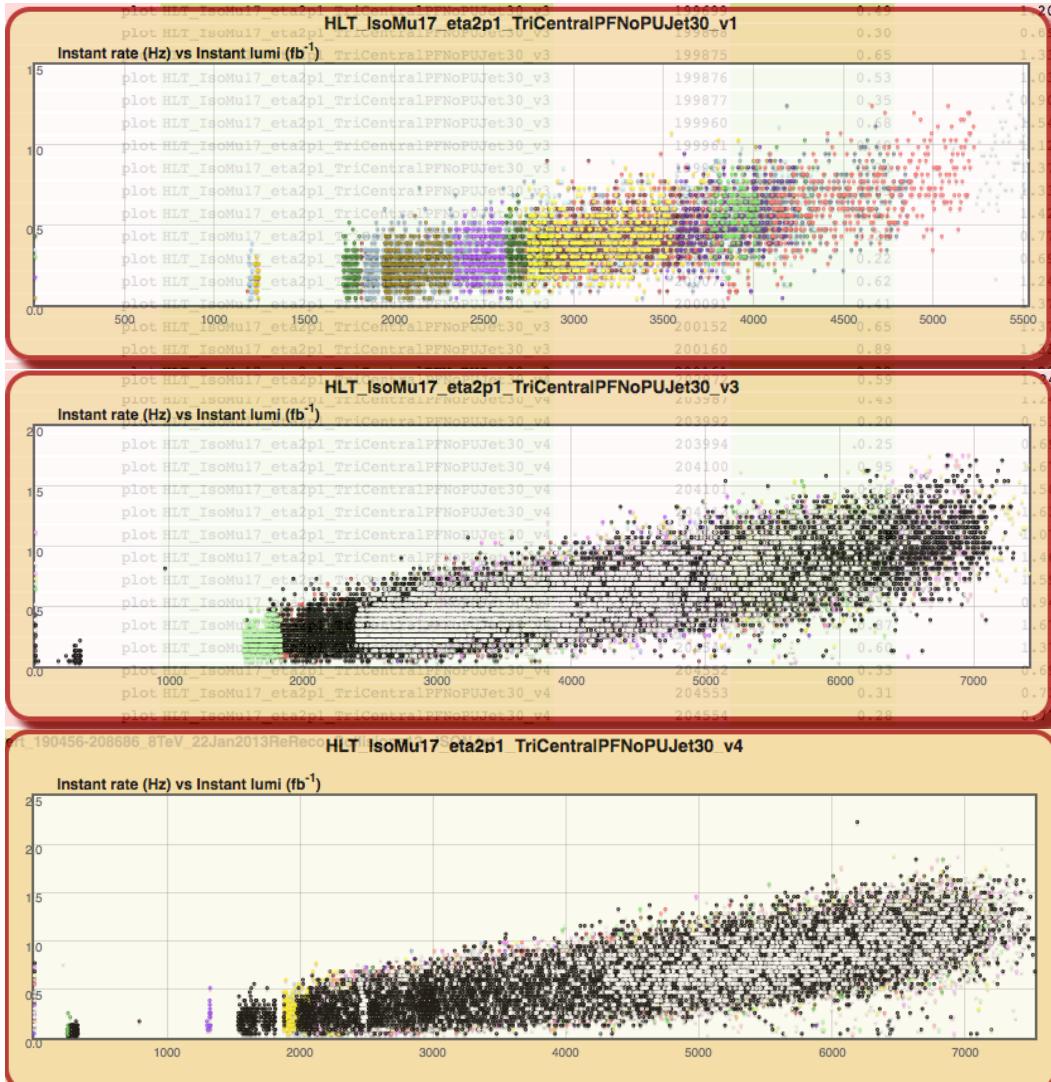
Configurations:

<ul style="list-style-type: none"> • /daq/physics/Run2012/8e33/v2.1/HLT/V1 <ul style="list-style-type: none"> ◦ 999256 • /daq/physics/Run2012/8e33/v2.0/HLT/V1 <ul style="list-style-type: none"> ◦ 985693 • /daq/physics/Run2012/8e33/v2.0/HLT/V1 <ul style="list-style-type: none"> ◦ 985693 	<ul style="list-style-type: none"> • /daq/physics/Run2012/8e33/v1.2/HLT/V1 <ul style="list-style-type: none"> ◦ 975621 • /daq/physics/Run2012/8e33/v1.1/HLT/V1 <ul style="list-style-type: none"> ◦ 967510 • /daq/physics/Run2012/8e33/v1.0/HLT/V2 <ul style="list-style-type: none"> ◦ 951173 	<ul style="list-style-type: none"> • /daq/physics/Run2012/8e33/v1.0/HLT/V1 <ul style="list-style-type: none"> ◦ 951173 • /daq/physics/Run2012/7e33/v4.2/HLT/V1 <ul style="list-style-type: none"> ◦ 936627
---	---	--

Ultimate Trigger Calculator (UTC)

<https://lciano.web.cern.ch/lciano/production/utc/>

plot rate VS instantaneous luminosity



still under-development

- ➡ the tool can “easily” be adapted to user needs
- [feedback are really welcome]



some screenshots: UTC

plot	HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7	202333	7.01				
plot	HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7	202389	11.21				
plot	HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7	202469	10.70				
plot	HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7	202472	8.73				
plot	HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7	202477	7.28				
plot	HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7	202478	5.32				
plot	HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7	202504	5.83				
plot	HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v7	199698-202504	5.73				
plot	HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v8	202972	7.64				
HLT_Mu12_eta2p1_DiCentral_40_20_DiBTagIP3D1stTrack_v8 run: 202972							
Lumisection	Instant rate (Hz)	Instant Lumi (pb ⁻¹)	Delivered Lumi (pb ⁻¹)	Recorded Lumi (pb ⁻¹)	Effective Lumi (fb ⁻¹)	#Triggers	PS@Lumi
1	HLT_Mu12	9.48	5.58	0.00	0.00	33909	9.85
2	HLT_Mu12	10.12	5.55	129.30	117.44	33912	5.44
3	HLT_Mu12	9.95	5.54	129.26	127.26	33985	3.67
4	HLT_Mu12	9.65	5.54	129.20	127.70	33986	3.35
5	HLT_Mu12	9.52	5.54	129.11	127.65	33987	5.12
6	HLT_Mu12	10.25	5.53	129.01	127.56	33991	2.20
7	HLT_Mu12	9.31	5.53	128.91	127.47	33992	3.16
8	HLT_Mu12	9.35	5.52	128.78	127.33	33994	3.87
9	HLT_Mu12	3.69	5.52	128.66	127.23	34100	86
10	HLT_Mu12	5.79	5.51	128.47	126.91	34101	9.46
11	HLT_Mu12	9.57	5.50	128.32	126.76	34113	9.11
12	HLT_Mu12	9.40	5.50	128.29	126.73	34114	6.29
13	HLT_Mu12	9.27	5.50	128.28	126.71	34238	1.18
14	HLT_Mu12	9.18	5.50	128.22	126.35	34250	7.02
15	HLT_Mu12	8.62	5.50	128.14	126.40	34511	7.42
16	HLT_Mu12	9.40	5.49	128.11	126.42	34541	9.23
17	HLT_Mu12	9.87	5.49	127.98	126.31	34544	230
18	HLT_Mu12	10.00	5.49	127.94	126.26	34552	233
19	HLT_Mu12	10.12	5.48	127.88	125.96	34553	4.66
20	HLT_Mu12	9.22	5.48	127.81	126.08	34554	4.19
21	HLT_Mu12	9.74	5.47	127.68	125.81	34555	3.56
22	HLT_Mu12	9.52	5.47	127.58	125.38	34563	8.96
23	HLT_Mu12	9.52	5.47	127.54	125.59	34564	5.60
24	HLT_Mu12	9.18	5.47	127.46	125.74	34565	4.06
25	HLT_Mu12	10.51	5.46	127.40	125.75	34566	3.70
26	HLT_Mu12	9.44	5.46	127.21	125.35	34567	4.19
27	HLT_Mu12	9.09	5.46	127.16	125.48	34576	7.40
28	HLT_Mu12	10.42	5.45	127.10	125.46	34577	6.32
29	HLT_Mu12	9.44	5.45	127.06	125.22	34599	7.15
30	HLT_Mu12	10.17	5.44	127.00	125.27	34601	5.86
31	HLT_Mu12	9.09	5.44	126.84	125.20	34608	0.53
32	HLT_Mu12	9.09	5.43	126.72	125.06	34611	9.75
33	HLT_Mu12	9.52	5.43	126.57	124.93	34615	8.46
34	HLT_Mu12	9.09	5.42	126.43	124.81	346193	7.93
35	HLT_Mu12	9.57	5.41	126.23	124.63	346217	5.40
36	HLT_Mu12	10.00	5.40	126.03	124.42	346233	2.33
37	HLT_Mu12	9.65	5.40	125.91	124.30	346236	8.41
38	HLT_Mu12	9.57	5.39	125.78	124.18	346238	4.62

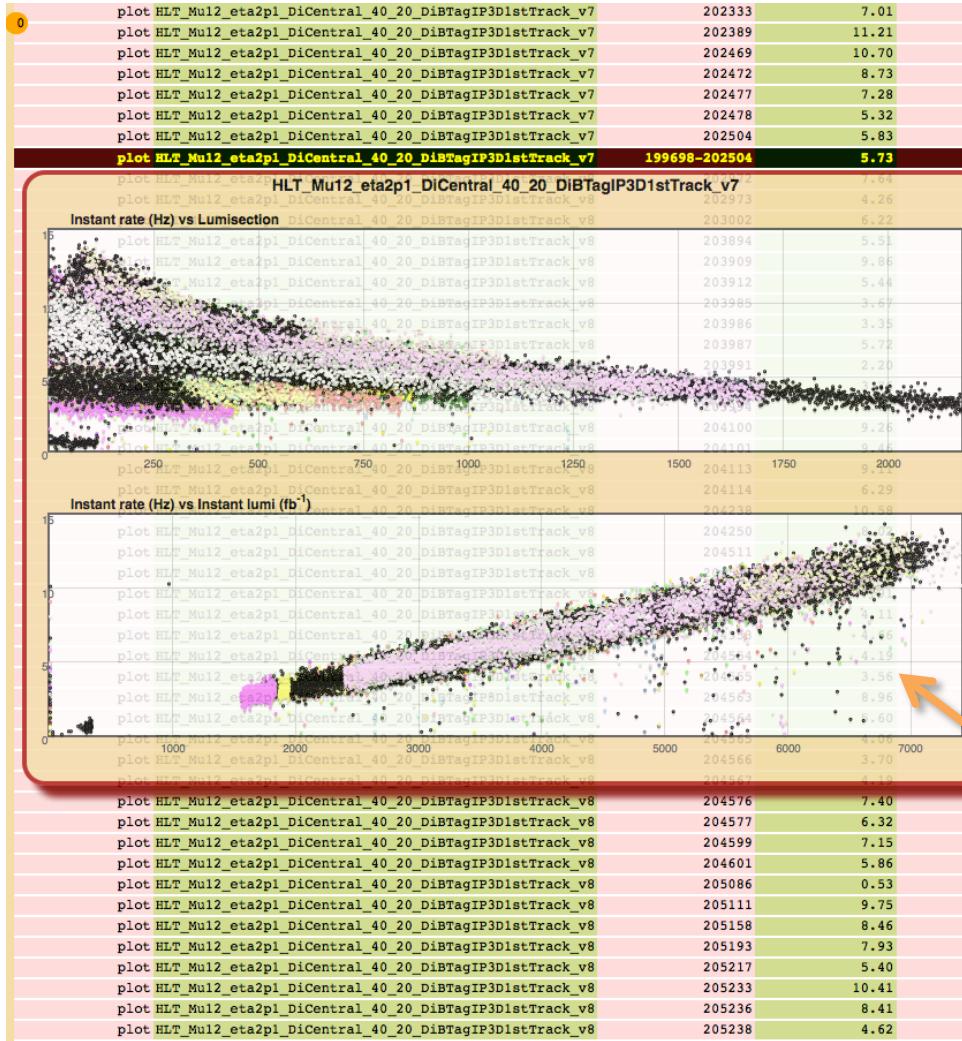
HF lumi info

HF lumi info				
38.29	37.36	37.36	66,287	1.00
13.22	17.00	13.00	22,406	1.00
16.07	15.83	15.83	26,735	1.00
95.18	94.24	94.24	158,302	1.00
141.50	139.69	139.69	237,142	1.00
4,871.71	4,786.94	4,786.94	8,087,777	1.00
57.0	56.70	56.70	97,117	1.00
7.58	86.91	86.91	145,130	1.00
139.39	137.31	137.31	233,090	1.00
101.63	100.53	100.53	169,181	1.00
40.96	39.56	39.56	69,138	1.00
105.46	104.45	104.45	175,242	1.00
1.05	0.41	0.41	686	1.00
4.96	2.03	2.03	3,490	1.00
83.61	82.87	82.87	139,153	1.00
0.13	0.10	0.10	139	1.00
0.88	0.79	0.79	1,285	1.00
23.47	23.20	23.20	38,323	1.00
3.21	3.02	3.02	5,406	1.00
9.66	9.32	9.32	16,525	1.00
77.97	76.21	76.21	131,064	1.00
33.82	33.38	33.38	55,507	1.00
4.47	4.24	4.24	7,703	1.00
	79.29	79.29	136,147	1.00
	5.75	5.75	9,604	1.00
	27.79	27.79	48,884	1.00
	46.81	46.81	79,579	1.00
0.56	0.56	0.56	853	1.00
6.61	6.56	6.56	10,794	1.00
30.24	30.01	30.01	49,931	1.00
16.74	16.64	16.64	27,881	1.00
60.26	58.94	58.94	100,559	1.00
104.23	103.08	103.08	171,452	1.00
2.83	2.81	2.81	4,603	1.00
0.65	0.64	0.64	1,068	1.00
2.15	2.13	2.13	3,633	1.00
36.13	34.29	34.29	60,037	1.00
117.06	115.80	115.80	194,341	1.00
36.48	35.42	35.42	62,413	1.00
106.24	105.09	105.09	176,911	1.00
0.40	0.38	0.38	757	1.00
47.84	46.74	46.74	82,267	1.00
76.08	74.63	74.63	130,053	1.00
93.20	91.83	91.83	157,422	1.00
23.85	23.64	23.64	39,835	1.00
8.80	8.45	8.45	14,918	1.00
40.35	39.69	39.69	68,038	1.00
50.36	49.78	49.78	83,119	1.00

expanded view

lumisection details

some screenshots: UTC



HF lumi info

expanded view

rate vs LS/ inst. luminosity



What would a user want to know:

information book-keeping (L1 seed, contact, expected rates, comments, ...)

<https://lciano.web.cern.ch/lciano/production/utb/>

Config

```
/cdaq/physics/Run2012/8e33/v2.1/HLT/V1
/cdaq/physics/Run2012/8e33/v2.0/HLT/V2
/cdaq/physics/Run2012/8e33/v2.0/HLT/V1
/cdaq/physics/Run2012/8e33/v1.2/HLT/V1
/cdaq/physics/Run2012/8e33/v1.1/HLT/V1
/cdaq/physics/Run2012/8e33/v1.0/HLT/V2
/cdaq/physics/Run2012/8e33/v1.0/HLT/V1
/cdaq/physics/Run2012/7e33/v4.2/HLT/V1
/cdaq/physics/Run2012/7e33/v4.1/HLT/V1
/cdaq/physics/Run2012/7e33/v4.0/HLT/V1
```

Create xls

GoogleDoc replacement

1. select the specific trigger menu
2. press the button
→ it produces an .xls file which stores all information available in the DB by exploiting the “description” field

	A	B	C	D	E	F	G
		Contact	L1 seed	group	rate	type	description
1	/cdaq/physics/Run2012/8e33/v2.1/HLT/V1						
2	LumiPixels_Random						
3	AlCa_EcalPixel_ZeroBias			L1_ZeroBias			
4	AlCa_L1Muons			L1_AlwaysTrue			
5	AlCa_Pb0						
6	AlCa_Ecal_EOnly						
7	AlCa_Ecal_EEEOnly						
8	AlCa_EcalPOEBonly						
9	AlCa_EcalPOEEonly						
10	AlCa_EcalPhysSym						
11	AlCa_EcalPhysSym						
12	AlCa_EcalPhysSym			L1_ZeroBias			
13	Electrons						
14	HLT_DiJet40Eta2p6_BTagIP3DFastPV	Roberval Walsh <roberval.walsh@cern.ch>		L1_DoubleJetC36			
15	HLT_DiJet80Eta2p6_BTagIP3DFastPVLoose	Roberval Walsh <roberval.walsh@cern.ch>		L1_DoubleJetC36			
16	HLT_DiPFJet30_DiPFJet30_BTagCSVd7d0705	Andrea Rizzi@cern.ch Silvia Donato@cern.ch		L1_DoubleJetC56 OR L1_DoubleJetC64			
17	HLT_DiPFJet80_DiPFJet30_BTagCSVd7d0503	Andrea Rizzi@cern.ch Silvia Donato@cern.ch		L1_DoubleJetC56 OR L1_DoubleJetC64			
18	HLT_DiPFJet80_DiPFJet30_BTagCSVd7d0505	Andrea Rizzi@cern.ch Silvia Donato@cern.ch		L1_DoubleJetC56 OR L1_DoubleJetC64			
19	HLT_Jet160Eta2p4_Jet120Eta2p4_DiTagIP3DFastPV	Roberval Walsh <roberval.walsh@cern.ch>		L1_SingleJet128			
20	HLT_Jet160Eta2p4_Jet120Eta2p4_DiTagIP3DFastPV	Roberval Walsh <roberval.walsh@cern.ch>		L1_DoubleEta44_Eta1p74_WdEta4			
21	HLT_Jet80Eta1p7_Jet10Eta1p7_DiTagIP3DFastPV	Roberval Walsh <roberval.walsh@cern.ch>		L1_DoubleEta44_Eta1p74_WdEta4			
22	HLT_L1DoubleJet3BC			L1_DoubleJetC36			
23	HLT_QuadJet75_55_35_20_BTagIP_VBF			L1_TripleL1DoubleJetC36			
24	HLT_QuadJet75_55_35_20_VBF			L1_TripleL1DoubleJetC36			
25	HLT_QuadJet75_55_39_20_BTagIP_VBF			L1_TripleL1DoubleJetC36			
26	HLT_QuadPFJet78_61_44_31_BTagCSV_VBF			L1_TripleL1DoubleJetC36			
27	HLT_QuadPFJet78_61_44_31_VBF			L1_TripleL1DoubleJetC36			
28	HLT_QuadPFJet78_65_48_35_BtagCSV_VBF			L1_TripleL1DoubleJetC36			
29	DiTag			L1_Mu3_JetC52_WdEtaPh2			
30	HLT_BtagMu_DiJet110_Mu5			L1_Mu3_JetC16_WdEtaPh2			
31	HLT_BtagMu_DiJet20_Mu5			L1_Mu3_JetC16_WdEtaPh2			
32	HLT_BtagMu_DiJet40_Mu5			L1_Mu3_JetC16_WdEtaPh2			
33	HLT_BtagMu_DiJet70_Mu5			L1_Mu3_JetC52_WdEtaPh2			
34	HLT_BtagMu_Jet300_Mu5			L1_SingleJet128			
35	Commissioning			L1_ZeroBias			
36	HLT_Activity_Ecal_SC7			L1_BeamGas_HF_BptxPlusPostQuiet			
37	HLT_BeamGas_HF_Beam1			L1_BeamGas_HF_BptxMinusPostQuiet			
38	HLT_BeamGas_HF_Beam2			L1_SingleJet128			
39	HLT_IsoTrackHB			L1_SingleJet69			
40	HLT_IsoTrackHF			L1_SingleJet69			
41	HLT_L1SingleEG12			L1_SingleEG12			
42	HLT_L1SingleEG5			L1_SingleEG5			
43	HLT_L1SingleJet16			L1_SingleJet16			
44	HLT_L1SingleJet36			L1_SingleJet36			
45	HLT_L1SingleMu12			L1_SingleMu12			
46	HLT_L1SingleMuOpen			L1_SingleMuOpen			