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Which plots are in the Top Muon HLT DQM?

14 Efficiency related plots:

D0, Z0, Charge, eta, phi, pt, pt_max

7 distributions * 2 histos/distrib = 14 plots

6 Fake related plots: pt, eta, phi (ONLY produced for HLT Triggers)

1 Charge Flip

2 isolation

4 Beamspace track parameters: D0, Z0 eff from beamspace

2 Phi Vs Eta

3 Resolution: Pt, eta phi

Examples of plots

- A talk demonstrating some of the plots is available on indico:
<http://indico.cern.ch/conferenceDisplay.py?confId=68436>
- A pdf with just the plots and no explanation is available here:
https://twiki.cern.ch/twiki/pub/CMSPublic/SWGGuideMuonHLTopPAGDQM/ttbar_3_1_0_pre9.pdf
- The top DQM was run on a sample of events used in the October Exercise. The results are documented CMS.OfflineHLTDQMTopOctX

What selections are used on the muons that go into these plots?

The selections are available in the CMSSW CVS. There are two configuration: COSMICS [↗](#) and COLLISIONS [↗](#).

Specifically, the selection for CRAFT09 cosmic data is:

```
collectionName = cms.untracked.string ("TopCosmicConfig3"),
trackCollection = cms.untracked.string ("outerTrack"),
requiredTriggers = cms.untracked.vstring(""),
d0cut = cms.untracked.double(1000.0), # any where
z0cut = cms.untracked.double(1000.0), # any where
recoCuts = cms.untracked.string ("abs(eta) <2.0"),
hltCuts = cms.untracked.string ("abs(eta) <2.0")
```

In other words, we select stand-alone muons with $|\eta| < 2.0$, and any d_0 or z_0 , and match them to hlt muons with $|\eta| < 2.0$.

[b]Currently, we also require ≥ 2 jets.[/b]

The purpose of this selection is to put events in the histogram to make sure that we can see events going through the whole workflow. These events won't be top-like.

Where is the source code?

If you check out the latest SWGuideMuonHLTOfflineDQM, it includes the latest Top DQM module.

The relevant files are:

```
DQMOffline/Trigger/src/TopTrigAnalyzer.cc  
DQMOffline/Trigger/src/HLTTopPlotter.cc  
DQMOffline/Trigger/interface/HLTTopPlotter.h  
DQMOffline/Trigger/python/TopTrigRateAnalyzer_cosmics_cfi.py  
DQMOffline/Trigger/python/TopTrigRateAnalyzer_cfi.py
```

Here are instructions for running the code

```
ssh lxplus5  
scram project -s CMSSW CMSSW_3_6_0_pre2  
cd CMSSW_3_6_0_pre2/src
```

-- JasonSlaunwhite - 2009-08-27

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