

## CheckMuonIDWithROOT < LHCb < TWiki

Here's an example how to check muon ID histograms produced by MuonPIDChecker, that runs in Brunel:

login to lxplus

SetupProject online

```
cd /afs/cern.ch/lhcb/group/dataquality/ROOT/Collision10/
```

Select a ROOT file, for example

```
root -l
Beam3500GeV-VeloClosed-MagDown/70733/Real_Data_RecoStripping-03/90000000/BrunelDaVinci_FULL_70733
```

On afs, the root files are quickly deleted, but a backup is kept on CASTOR, use:

```
root -l
/castor/cern.ch/grid/lhcb/dataquality/Collision10/Beam3500GeV-VeloClosed-MagDown/70733/Real_Data_
```

(here use the `nsls` command to find ROOT files, e.g. `nsls -l /castor/cern.ch/grid/lhcb/dataquality/Collision10/`)

Open a TBrowser: by typing `TBrowser b`

Double click on the `ROOT Files` folder

Double click on the only item in the right window

Double click on the `Muon` folder

Double click on the `MuonPID` folder

Double click on the `MonitorLong` folder

Double click on any of the 46 histograms available:

|                          |                                 |
|--------------------------|---------------------------------|
| <code>hNtracks</code>    | Track multiplicity              |
| <code>hPSNtracks</code>  | PreSelection Track multiplicity |
| <code>hNIMLtracks</code> | IsMuonLoose Track multiplicity  |
| <code>hNIMtracks</code>  | IsMuonLoose Track multiplicity  |

|                                 |                                     |
|---------------------------------|-------------------------------------|
| <code>hNIMLtracksRatio</code>   | <code>#IsMuonLoose/#Tracks</code>   |
| <code>hNIMLPstracksRatio</code> | <code>#IsMuonLoose/#PSTracks</code> |
| <code>hNIMtracksRatio</code>    | <code>#IsMuon/#Tracks</code>        |
| <code>hNIMPstracksRatio</code>  | <code>#IsMuon/#PSTracks</code>      |

|                      |                           |
|----------------------|---------------------------|
| <code>hIML_PS</code> | IsMuonLoose for PS Tracks |
| <code>hIM_PS</code>  | IsMuon for PS Tracks      |

|                           |  |
|---------------------------|--|
| <code>hPSMomentum</code>  | PreSelected Track Momentum (GeV/c <sup>2</sup> )           |
| <code>hPSPT</code>        | PreSelected Track p <sub>T</sub> (GeV/c <sup>2</sup> )     |
| <code>hPSRegion</code>    | MS Region for PS tracks                                    |
| <code>hIMLMomentum</code> | IsMuonLoose Candidate Momentum (GeV/c <sup>2</sup> )       |
| <code>hIMLPT</code>       | IsMuonLoose Candidate p <sub>T</sub> (GeV/c <sup>2</sup> ) |
| <code>hIMLRegion</code>   | MS Region for IML tracks                                   |

|             |   |
|-------------|---|
| hIMMomentum | IsMuon candidate Momentum (GeV/c <sup>2</sup> )       |
| hIMPT       | IsMuon candidate p <sub>T</sub> (GeV/c <sup>2</sup> ) |
| hIMRegion   | MS Region for IM tracks                               |

|              |                       |
|--------------|-----------------------|
| hNShared_IML | NShared for PS Tracks |
| hNShared_IM  | NShared for PS Tracks |

|            |                                    |
|------------|------------------------------------|
| hNIMLvsXM2 | MS X position at M2 for IML tracks |
| hNIMLvsYM2 | MS Y position at M2 for IML tracks |
| hNIMvsXM2  | MS X position at M2 for IM tracks  |
| hNIMvsYM2  | MS Y position at M2 for IM tracks  |

|               |                                    |
|---------------|------------------------------------|
| hDist2_IML    | Muon Dist for IML candidates       |
| hDist2_IML_R1 | Muon Dist for IML candidates at R1 |
| hDist2_IML_R2 | Muon Dist for IML candidates at R2 |
| hDist2_IML_R3 | Muon Dist for IML candidates at R3 |
| hDist2_IML_R4 | Muon Dist for IML candidates at R4 |
| hDist2_IM     | Muon Dist for IM candidates        |
| hDist2_IM_R1  | Muon Dist for IM candidates at R1  |
| hDist2_IM_R2  | Muon Dist for IM candidates at R2  |
| hDist2_IM_R3  | Muon Dist for IM candidates at R3  |
| hDist2_IM_R4  | Muon Dist for IM candidates at R4  |

|                |   |
|----------------|---|
| hProbMu_IML    | Muon Probability for IML candidates       |
| hProbNMu_IML   | Non-Muon Probability for IML candidates   |
| hProbMu_IML_R1 | Muon Probability for IML candidates at R1 |
| hProbMu_IML_R2 | Muon Probability for IML candidates at R2 |
| hProbMu_IML_R3 | Muon Probability for IML candidates at R3 |
| hProbMu_IML_R4 | Muon Probability for IML candidates at R4 |
| hProbMu_IM     | Muon Probability for IM candidates        |
| hProbNMu_IM    | Non-Muon Probability for IM candidates    |
| hProbMu_IM_R1  | Muon Probability for IM candidates at R1  |
| hProbMu_IM_R2  | Muon Probability for IM candidates at R2  |
| hProbMu_IM_R3  | Muon Probability for IM candidates at R3  |
| hProbMu_IM_R4  | Muon Probability for IM candidates at R4  |

If the ROOT file has been merged from several original files, three trend histograms are produced for every original histogram:

- The trend of the number of entries ( with `_Entries`)
- The trend of the mean ( with `_Mean`)
- The trend of the RMS ( with `_Rms`)

-- RudolfOldeman - 05-May-2010

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This topic: LHCb > CheckMuonIDWithROOT

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