TRD DA and Shuttle pre-processor

- Status of the DAs on DAQ
- Status of the Shuttle TRD pre-processor
- Run types
- Detector calibration algorithms from ESDs/ESDfriends for second pass reconstruction.

Status of the DAs on DAQ

- Two TRD DAs on DAQ
  - Pedestal algorithm
  - Drift velocity algorithm
- Has been done and is still to be done

Status of the DAs on DAQ

AliRoot Head 04/04/2008

Pedestal algorithm

- Run Type: PEDESTAL run
- DA Type: LDCs
- Number of events needed: 100
- Input Files: no config files, no previous result files,
  RAW DATA files from DDL Id= 1024 to 1041 included
- Output Files: trdCalibration.root
  no persitent file over runs
- Test File: run 12170 from 14/12/2007

Status of the DAs on DAQ

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Drift velocity algorithm

- Run Type: PHYSICS or STANDALONE run
- DA Type: monitoring server
- Number of events needed: continuously running
- Input Files: no config files, no previous result files,
  RAW DATA file with all the TRD ([DDL = 1024 to 1041])
- Output Files: trdCalibrationv.root
  no persitent file over runs
- Test Files: run 25909 from 08/03/2008
  and one file from cosmics taken in Muenster

Status of the DAs on DAQ

Has be done for both algorithms:

- previous versions installed at point 2 in December but no time to put them in production
- meanwhile important updates have been done on the reader

Has still to be done for both algorithms:

- to be installed at point 2
- to be tested manually on real data together with Sylvain
  (first iteration in process...)
- to be put in production

Status of the Shuttle pre-processor

- Summary of what the TRD preprocessor is supposed to do
- Status

Status of the Shuttle TRD pre-processor

- DCS
  - DCS data points (PHYSICS/STANDALONE run)
    - Put into the DCS Archive DB
    - Take at the Shuttle for PHYSICS/STANDALONE run
    - build TGraphs and put them into the OCDB
  - DCS FXS
    - Put a File with the TRD configuration on the DCS FXS
    - Take it at the Shuttle
    - Store the info in some format into the OCDB

Status of the Shuttle TRD pre-processor

- DAQ FXS (PEDESTAL and PHYSICS/STANDALONE run)
  - Take the Output of the DAQ DAs on the FXS
  - Analyse and populate the OCDB and reference data
- HLT FXS (PHYSICS/STANDALONE run)
  - Take one file on the HLT FXS
  - Analyse and populate the OCDB and reference data

Status of the Shuttle TRD pre-processor

- DCS
  - DCS data points
    - Up to now it was failing because of non-existing datapoints
    - Added dummy-Datapoints
    - Has still to be tested
  - DCS FXS
    - We have still to define the format of the file put on the DCS FXS
- DAQ FXS
  - is working in testmode
- HLT FXS
  - is working in testmode

Status of the Shuttle TRD pre-processor

	Preprocessor implementation				DAQ		DCS				HLT	
					FXS		Archive DB		FXS		FXS	
	in cvs	test	reco test	failover test	DA in production	output files	DP names	DP implem.	DA implem.	output files	DA implem.	output files
ITS spd (SPD)	Yes	Passed	Passed	2 errors	Ok	Ok	Not needed	Not needed	Not needed	Not needed	Not needed	Not needed
ITS sdd (SDD)	Yes	Passed	Passed	Passed	Ok	Ok	Ok	Ok	Not needed	Not needed	Not needed	Not needed
ITS ssd (SSD)	Yes	Passed	-	Passed	Ok	Ok	Missing	Missing	Not needed	Not needed	Not needed	Not needed
TOF	Yes	Passed	Passed	Passed	Ok	Ok	Ok	Ok	Ok	Ok	Not needed	Not needed
TPC	Yes	FAILED	-	Ok	Ok	Ok	Ok	Ok	Unknown	Unknown	Ok	Missing
TRD	Yes	Passed	Passed	Passed	Missing in DAQ	Ok	Ok	Ok	Missing	Missing	Ok	Ok
T0 (T00)	Yes	Passes	tbd	tbd	Ok	Ok	Ok	Ok	Not needed	Not needed	Not needed	Not needed
VZERO (V00)	Yes	Passed	-	1 error	In progress	Ok	Ok	Ok	Not needed	Not needed	Not needed	Not needed
ZDC	Yes	Passed	Passed	1 error	Missing in DAQ	Ok	Ok	Ok	Not needed	Not needed	Not needed	Not needed

Run types

We have the run types in the constructor of the TRD preprocessor

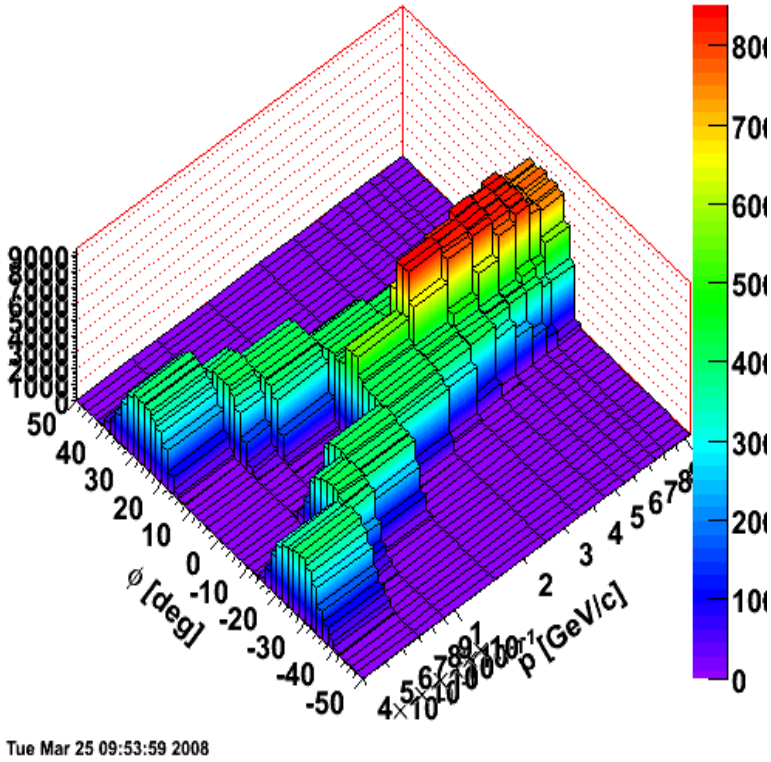
- PEDESTAL
- STANDALONE
- PHYSICS

Detector calibration algorithms from ESDs/ESDfriends

For calibration with tracks (Standalone (HLT) or global tracking (Offline)) we need:

- the $\frac{dE}{dx}$ of the track
  - for gain calibration
- clusters attached to the track
  - dependence as function of time for drift velocity and t0 calibration
  - profile of the clusters for Pad Response Function
- angles of the track ($\frac{dy}{dx}$, $\frac{dz}{dx}$)
  - drift velocity calibration
    See method with $\frac{dy}{dt}$ as function of $tan(\phi)$
  - Pad Response Function
    The y resolution depends on $tan(\phi)$

Detector calibration algorithms from ESDs/ESDfriends



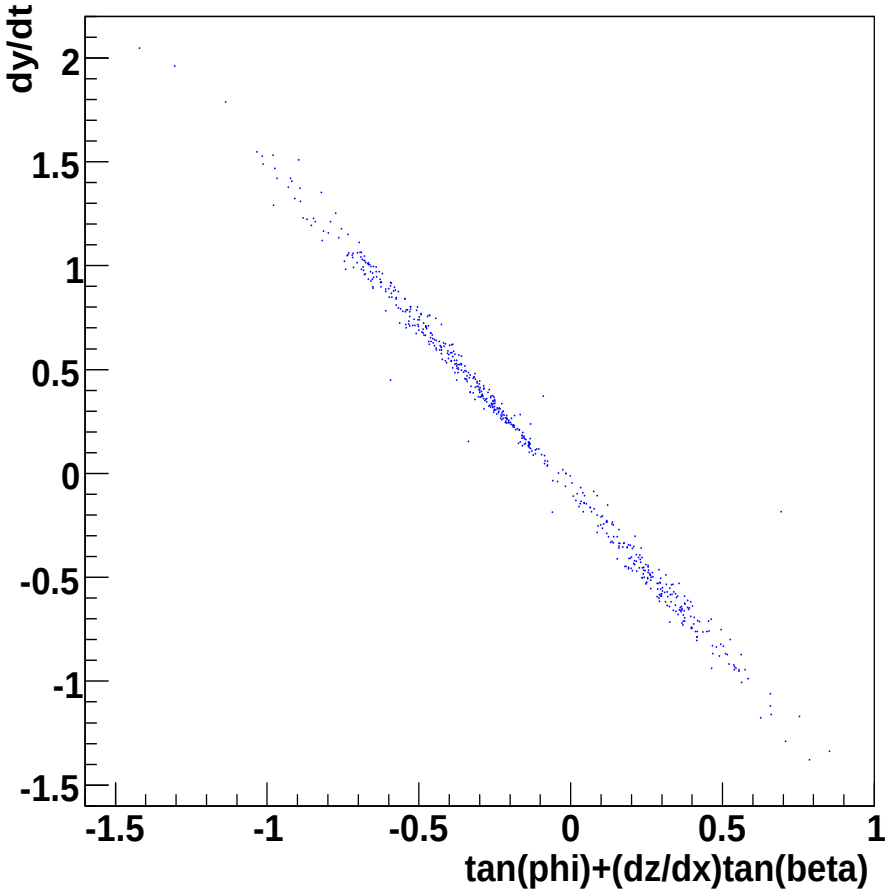
Where can we find these informations at the moment?

- AliESD
  - AliESDfriendTrack
    - TObjArray fCalibContainer
      - AliTRDtrackV1

We have to define a COMMON strategy for V0 and p biased TRACK selection.

Second method for drift velocity and Lorentz angle (global tracking needed)

(Simulated pp collisions at 14 TeV)



Use the TRD tracklet

$$\frac{dy^{cl}}{dt^{cl}} = (\tan(\phi^t) + (\frac{dz}{dx})^t \times \tan(\beta_{tilt})) \times p_0 + p_1$$

$$p_0 = v_{||}$$

$$p_1 = \tan(\alpha_l) \times v_{||} - \tan(\alpha_{l_{idl}}) \times v_{||idl}$$

- determine:
  - from a linear fit of the tracklet $\frac{dy^{cl}}{dt^{cl}}$
  - from the global tracking the angles of the tracklet $\tan(\phi^t)$ and $(\frac{dz}{dx})^t$
  - from the database used during the reconstruction $\tan(\alpha_{l_{idl}}) \times v_{||idl}$
- deduce
  - the drift velocity: $v_{||}$
  - the Lorentz angle: $\tan(\alpha_l)$