Monitoring histograms

Status review / discussion points

SPD Online monitoring tools: AMORE vs SPDmood

- SPD Mood : handles many histograms, flexible, versatile, powerful graphical interface. The user can add histograms and monitor whatever he likes (the number of *processed* histograms depends on the machines at P2)

- AMORE starting idea: online monitoring tool to provide fast "non-expert" checks on the data quality during data taking.

  Leftover issues:
  - offline QA histograms vs online histograms within SPD AMORE module
  - Introduction Offline Checkers (-> flags if empty histograms, possible Kolmogorov tests, fast fits, etc.)
  - Total number of histograms (??)

OFFLINE QA HISTOGRAMS

Offline QA histograms: Raw Data

Histogram type	#	level	dimension	# bins
Data entry per layer [expert]	1	general	TH1	6
Modules (ladder) per layer	2	layer	TH1	240
Digit [Hit] Map [expert]	20	DDL(1/2sector)	TH2	(10*32) x (6*256)
Error type distribution [expert]	20	DDL(1/2sector)	TH1	#error codes
Digit [Hit] multiplicity [expert]	2	layer	TH1	200
Digit multiplicity layer 1 vs layer 2	1	general	TH2	200x200
FO Bit 1 multiplicity [expert]	2	layer	TH1	100
FO Bit 1 multiplicity layer 1 vs layer 2	1	general	TH2	100x100
FO Bit Map [epert]	20	DDL(1/2sector)		

RecPoints (SPD clusters)

Histogram type	#	level	dimen.	bins
Entries per layer. [expert]	1	general	TH1	6
Entries per ladder [expert]	2	layer	TH1	240
Local x [expert]	2	layer	TH1	100 [-4,4] cm
Local z [expert]	2	layer	TH1	100 [-4,4] cm
Global x [expert]	2	layer	TH1	100 [min,max]
Global y [expert]	2	layer	TH1	100 [min, max]
Global z [expert]	2	layer	TH1	100 [min,max]
Radius [expert]	2	layer	TH1	100 [0,10] cm
ϕ [expert]	2	layer	TH1	100 [0,2π]
Cluster size X vs size Z [expert]	2	layer	TH2	(100*100)x(100*100)
Global z vs ϕ	2	layer	TH2	(see previous ranges)
Radius vs ϕ [expert]	1	general	TH2	(see prevous ranges)
Global y vs Global x	1	general	TH2	(“)*
Cluster multiplicity	2	layer	TH1	200
Cluster multiplicity layer 1 vs layer 2	1	general	TH2	200 x 200

AMORE ONLINE HISTOGRAMS

Raw Data

Histogram type	#	level	dimension	bins
Status of Data Format Boolean	1	general	Integer (0/1)	\
# processed Events in the cycle	1	general	Integer	\
# errors type per equipment	1	general	TH1	20
Error type distribution	1	general	TH1	#err code
Error type distribution (equipment)	20	DDL (sector)	TH1	#err code
# error type / # processed Events	1	general	TH1	#err code
# error type / # processed Events	20	DDL (sector)	TH1	#err code

Digits

Histogram type	#	level	dimension	bins
# events per cycle	1	general	Integer	\
# Digits per equipment	1	general	TH1	20
#Digits per chip	20	DDL (sector)	TH1	60
#Events (digits>1) / # events (per equipment)	1	general	TH1	20
#Events (digits>1) / # events (per chip)	20	DDL (sector)	TH1	60

RecPoints (SPD clusters)

(Cluster Finder different from Offline)

Histogram type	#	level	dimension	bins
# clusters in Layer 1	1	general	TH1	20
# clusters in layer 2	1	general	TH1	20
Cluster size in layer 1	1	general	TH1	10
Cluster size layer 2	1	general	TH1	10
Cluster type layer 1	1	general	TH1	16
Cluster type layer 2	1	general	TH1	16
Cluster multiplicity layer 1 vs layer 2	1	general	TH2	100x100

OfflineQA – AMORE : Raws

Histogram type	
Data entry per layer	[expert]
Modules (ladder) per layer	
Digit [Hit] Map	[expert]
Error type distribution	[expert]
Digit [Hit] multiplicity	[expert]
Digit multiplicity layer 1 vs layer 2	

Histogram type	
Status of Data Format	(int)
# processed Events in the cycle	(int)
# errors type per equipment	
Error type distribution	
Error type distribution (equipment)	
# error type / # processed Events	
# error type / # processed Events (sector)	

Offline QA – AMORE : RecPoints

Histogram type	
Entries per layer.	[expert]
Entries per ladder	[expert]
Local x	[expert]
Local z	[expert]
Global x	[expert]
Global y	[expert]
Global z	[expert]
Radius	[expert]
ϕ	[expert]
Cluster size X vs size Z	[expert]
Global z vs ϕ	
Radius vs ϕ	[expert]
Global y vs Global x	
Cluster multiplicity	
Cluster multiplicity layer 1 vs layer 2	

Histogram type
clusters in Layer 1
clusters in layer 2
Cluster size in layer 1
Cluster size layer 2
Cluster type layer 1
Cluster type layer 2
Cluster multiplicity layer 1 vs layer 2

!! Cluster Finder is not the AliRoot one
e.g: different cluster shapes

Discussion points

- AMORE considered as a fast non expert monitoring tool
  (SPDmood will be always used)
- How many monitoring histograms?
- 2 Cluster Finders.
- Checkers can be used in AMORE in “visual mode”
  (e.g.: a change of the background color of the considered monitoring histogram)

Comment : Digits are monitored during “Raw Cycles” on the Offline side