DQM for Heavy Ion

The 5th Korea CMS Collaboration meeting

University of Seoul
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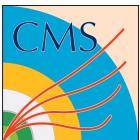
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- **Summary**

- **DQM - system , modules, GUI**

System
- Online (P5)
- Offline(C.A.F)

Modules
- Source(histograms on Events)
- Client(Quality check on Histograms)

GUI
- Display
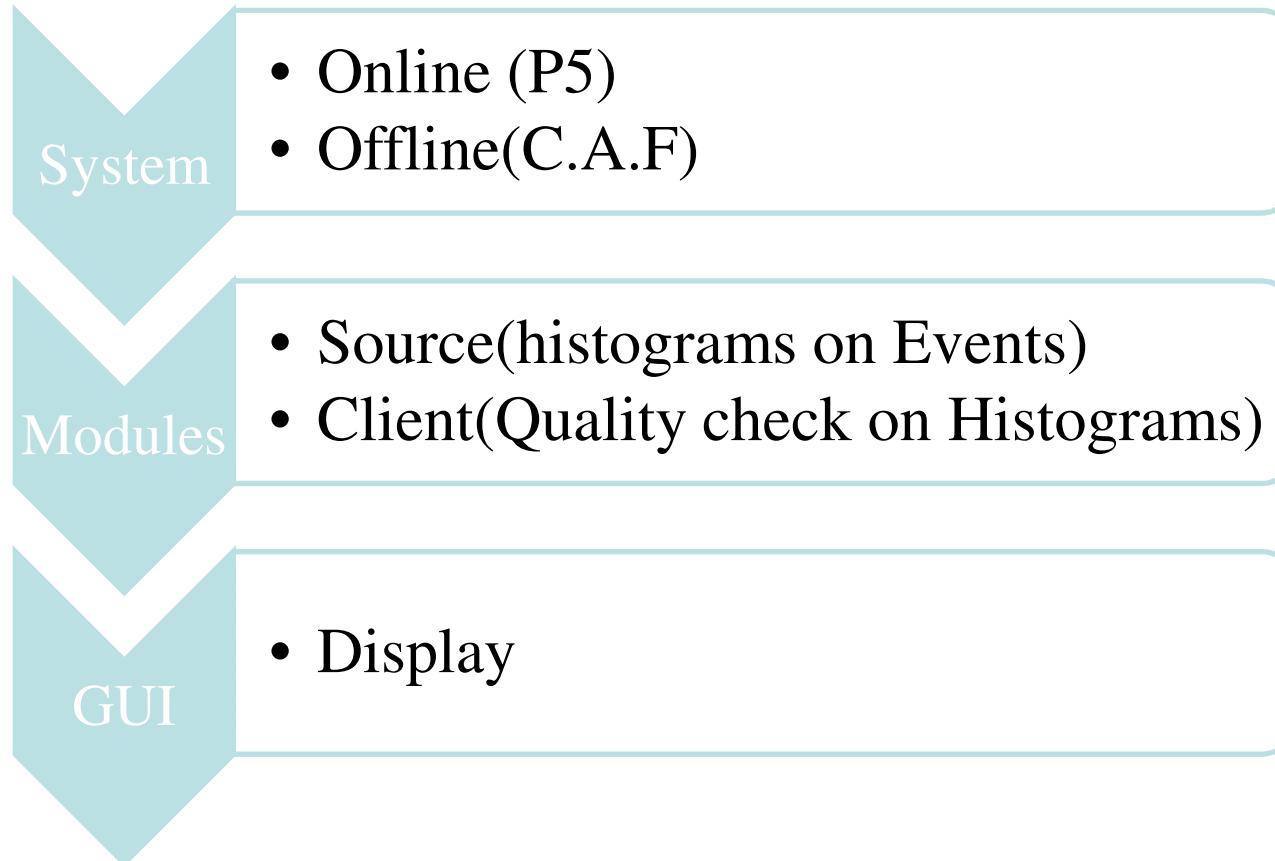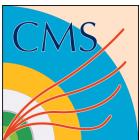
Purpose of Heavy Ion DQM

Is the current DQM system enough to handle

Heavy Ion Collision data ????

Nobody knows!!! Data format is same but ……

HI data size is much much lager than normal PP data!!!!

(eg. momentum range , Occupancies , . . .)

Additional histograms can be needed for HI.

So, We volunteered to build HI DQM.

Real Cosmic data
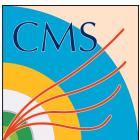
• **DQM source for pp :**

First step : Reconstruction

cmsDriver.py GeneratorPythiaMinbias_cfi.py -s GEN:ProductionFilterSequence,SIM,DIGI,L1,DIGI2RAW,HLT:1E31 -n 3 --
eventcontent FEVTDEBUGHLT --conditions FrontierConditions_GlobalTag,MC_31X_V2::All --mc
Output >>>PythiaMinBias_cfi_py_GEN_SIM_DIGI_L1_DIGI2RAW_HLT.root

cmsDriver.py step2_MC1_3 -s RAW2DIGI,RECO, DQM -n 3 –filein file:
PythiaMinBias_cfi_py_GEN_SIM_DIGI_L1_DIGI2RAW_HLT.root --eventcontent RECOSIM –conditions
FrontierConditions_GlobalTag,MC_31X_V2::All --mc
Output >>>step2_MC1_3_PP_RAW2DIGI_RECO_DQM.root

Second step : Harvesting

cmsDriver.py step3_MC1_3 -s HARVESTING:dqmHarvesting --harvesting AtRunEnd –conditions
FrontierConditions_GlobalTag,MC_31X_V2::All --filein file step2_MC1_3_PP_RAW2DIGI_RECO_DQM.root –mc
Output >>>DQM_V0001_R000000001_Global_CMSSW_x_y_z_RECO_PP.root

Generating DQM file with pp MinBias

CMSSW_3_1_1
Generate 99 events
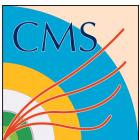
- **DQM source for pp :**

First step : Reconstruction

cmsDriver.py HYDJET_MinBias_4TeV_cfi_py_GEN_SIM_DIGI_L1_DIGI2RAW_MC.py -s
GEN:ProductionFilterSequence,SIM,DIGI,L1,DIGI2RAW:1E31 -n 3 --eventcontent FEVTDEBUGHLT --conditions
FrontierConditions_GlobalTag,MC_31X_V2::All --mc
Output >>>HYDJET_MinBias_4TeV_cfi_py_GEN_SIM_DIGI_L1_DIGI2RAW.root

cmsDriver.py step2_MC1_2 -s RAW2DIGI,RECO, DQM -n 3 –filein file:
HYDJET_MinBias_4TeV_cfi_py_GEN_SIM_DIGI_L1_DIGI2RAW.root --eventcontent RECOSIM –conditions
FrontierConditions_GlobalTag,MC_31X_V2::All --mc
Output >>>step2_MC1_2_HI_RAW2DIGI_RECO_DQM.root

Second step : Harvesting

cmsDriver.py step3_MC1_3 -s HARVESTING:dqmHarvesting --harvesting AtRunEnd –conditions
FrontierConditions_GlobalTag,MC_31X_V2::All --filein file step2_MC1_2_PP_RAW2DIGI_RECO_DQM.root –mc
Output >>>DQM_V0001_R000000001_Global_CMSSW_x_y_z_RECO_HI.root

Generating DQM file with Hydjet MinBias

CMSSW_3_1_1
2 events generated , it's crush from third events(finding the solution)
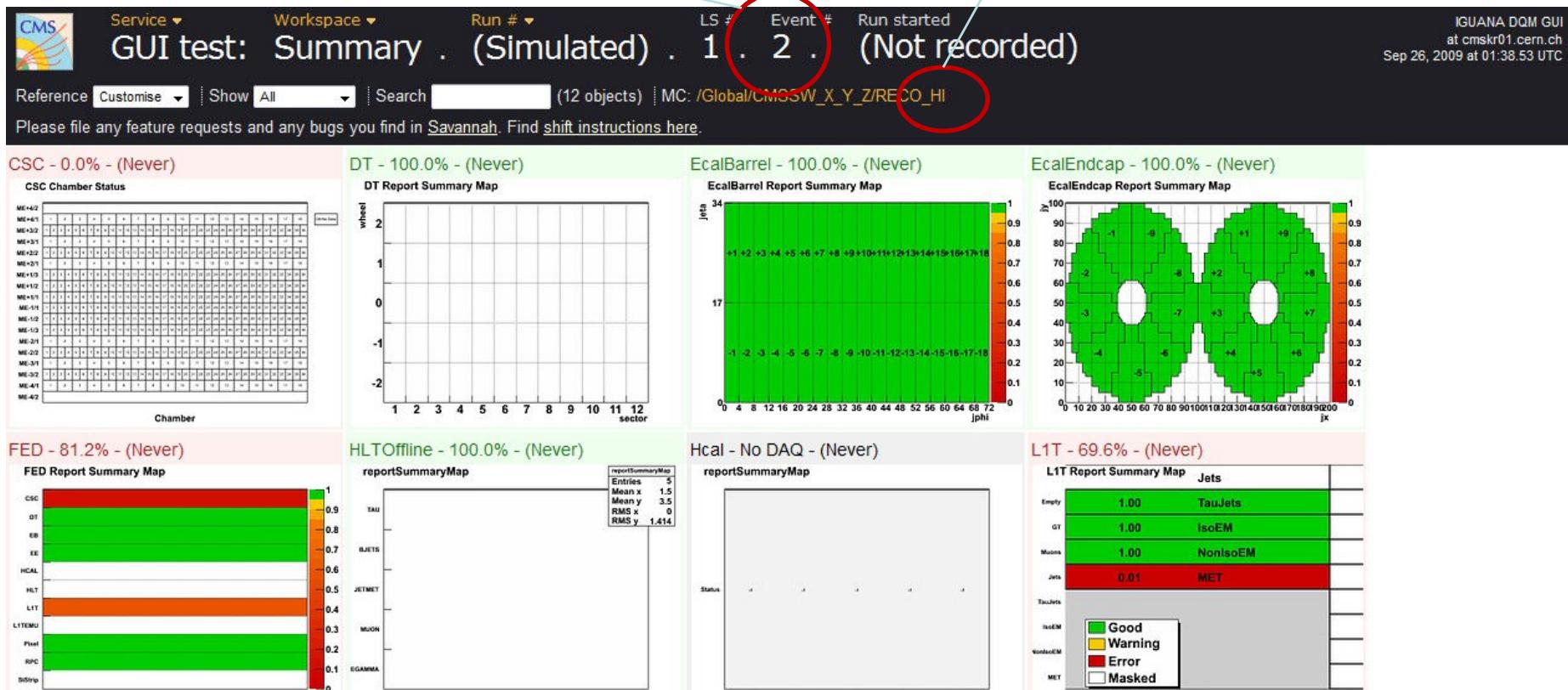
Generating DQM file with Hydjet MinBias

CMSSW_3_1_1
2 events generated , it's crush from third events(finding the solution)
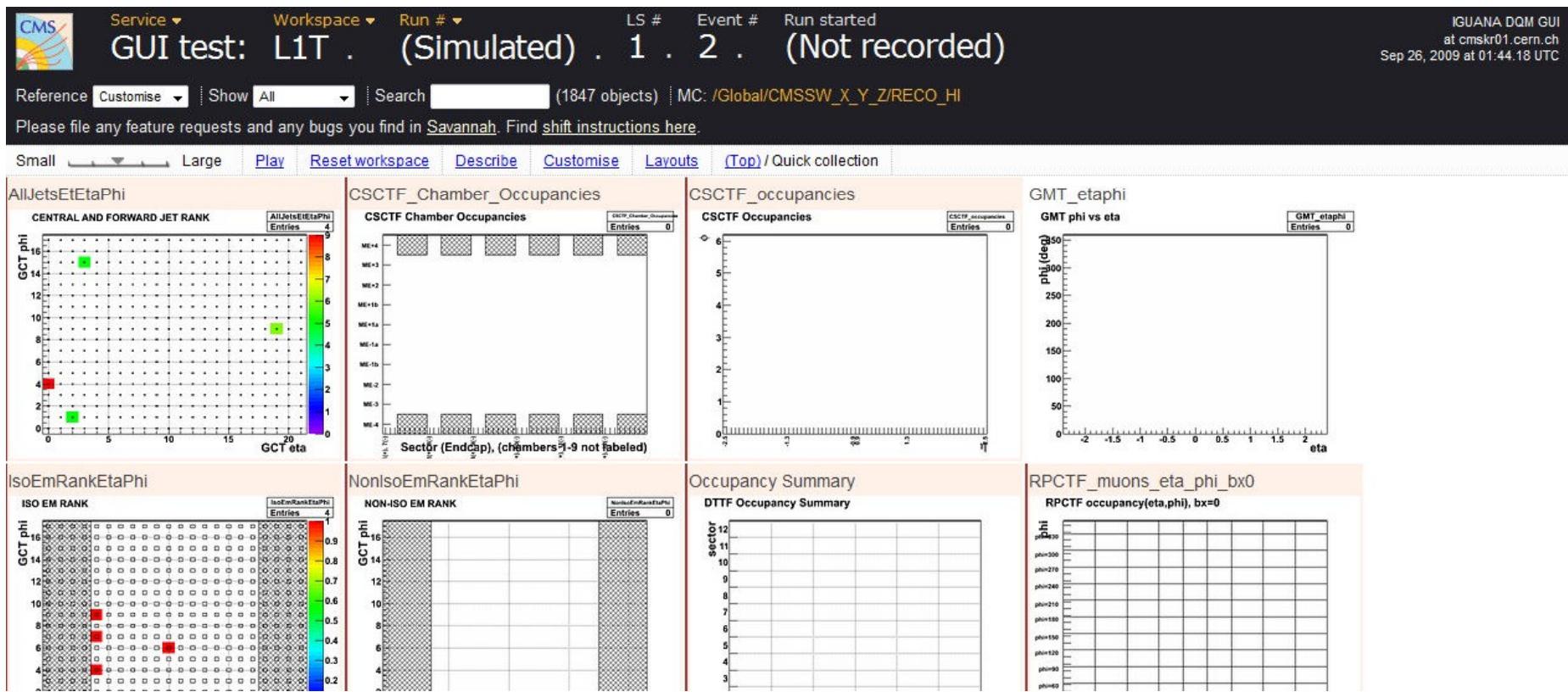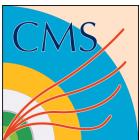
It's necessary to validate DQM for Heavy Ion.

We set up testing environment for Heavy Ion DQM

     GUI server installed in bld.587 R-040.

Found the serious crash in HI data!!!

We are investigating problems, Could be problem

in pp-DQM module??

Current status.

 - We do various test to fix some bug for HI so far.

 - Bug report page(http://www.cms-kr.org/twiki/bin/view/Main/20090819)