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EWK Multiboson Analysis of Saclay's CMS group

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How to run an analysis

Production with CMSSW, the GhmNtupleMaker, the GRID and CRAB

Complete Guide

Running an analysis from the n-tuples using AnaNaS on dapint

CVS Tag to be used for AnaNaS

- For 36X-38X, November 22th 2010, tag V04-11-10-RECO. Ntuple production started on November 22th 2010
- For 39X RECO and AOD, January 2nd 2011, tag v05-01-01

The major number XX in VXX-YY-ZZ, indicated the version of the n-tuple.

Getting AnaNaS code and AnaNaS usage

If AFS/kerberos authentications for CVS is available (e.g. on `lxplus`), set the following environment variable (if your shell is `tcsh`, use `setenv VAR value` in place of `export VAR=value`):

```
export CVSROOT=:gserver:cmscvs.cern.ch:/cvs_server/repositories/CMSSW
```

If AFS/kerberos is not available, define instead:

```
export CVSROOT=:ext:cmscvs.cern.ch:/cvs_server/repositories/CMSSW
export CVS_RSH=ssh
```

To download the code from CVS:

```
cvs co -d AnaNaS UserCode/GautierHdeM/AnaNaS=
```

Setting shell environment for AnaNaS (that starts a new shell and source the `setup` file):

```
cd AnaNas
./ananash
```

To exit AnaNaS environment, and restore your former shell enviroment, run `exit`.

To build the code, run:

```
build
```

https://twiki.cern.ch/twiki/bin/view/CMS/ProductionFall2010#PYTHIA6_AN2

To clean up the build (like a make clean), run the command: `clean`

You must set up a `data` directory:

```
cd workdir
```

```
ln -s YOUR_DATA_DIR data
```

Structure of data directory:

```
data
 +- Sample_name
 |     +- Ntuple_XYZ.root
 |     +- Ntuple_XYZ.root
 |
 +- Sample2_name
```

Names of samples must be registered in workdir/sample.txt.

To run the analysis:

```
analysis -s Sample_name
```

To run AnaNaS event display:

```
display -s Sample_name
```

Writing an analysis module:

Disclaimer: I wrote these instructions from my notes and I've not tested them. Philippe.

- Create in `AnaNaS/Analysis/src` files `MyAnalysis.cc` and `MyAnalysis.h`, where you define and implement your analysis class. That class must inherit from SampleAnalysis class: you will find class examples in `AnaNaS/Analysis/src`. The class must implement the three methods:
  - `virtual void bookHistograms();`
  - `virtual bool analyzeEvent();`
  - `virtual void writeHistograms();`
- Add your class `MyAnalysis` in the `AnaNaS/Analysis/src/LinkDef.h` file.
- Add your class in `AnalysisFactory.cc` file:

```
if( analysis_==string("MyAnalysis"))
  {
    return new MyAnalysis( "MyAnalysis", sample, collectionFileName );
  }
```

- When runing analysis application, the analysis name (as defined above in `AnalysisFactory`) must be specified with the -a option: `analysis -a MyAnalysis -s Sample_name`

Common histogram templates are defined in `Analysis/core/SampleAnalysis.cc`. Custom templates must be defined in `MyAnalysis::bookHistogram()` method.

2010 data processed

No summary yet, last production on Nov4ReReco data in progress See in the repository /home/gpfs/manip/mnt/cms/data/ntuple/Data7TeV Missing jobs in available datasets

Cross sections are in pb. Integrated luminosity is also in pb-1.
Cross sections in parenthesis are given by MCFM.
Energies are given in GeV.

When bosons decay leptonically, tau channels are included. No constraints on tau decays.

Summer10 and "370 Spring10" MonteCarlo datasets (deleted from dapint)

Multibosons

Process	DB Location	Generator	Simulation type	Order	Simu speci
WW	/WW/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia	Full	LO	-
WW_2l	/WW_2l_7TeV/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia	Full	LO	-
ZZ	/ZZ/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia	Full	LO	-
WZ	/WZ/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia	Full	LO	-
WZ_3l	/WZ_3l_7TeV/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia	Full	LO	-
WGam	/Wgamma/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia	Full	LO	-
ZGam	/Zgamma/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia	Full	LO	-
ZZ_4l	/ZZ_4l/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia	Full	LO	-
ZZ_2l2n	/ZZ_2l2nu/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia	Full	LO	-

Single bosons

Process	DB Location	G
Z_2t	/Ztautau/Summer10-START37_V5_S09-v1/GEN-SIM-RECO	Py
Z_2m	/Zmumu/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
Z_2e	/Zee/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
Z_2t_powheg	/Ztautau_M20_CTEQ66-powheg/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Po
Z_2m_powheg	/Zmumu_M20_CTEQ66-powheg/Summer10-START36_V9_S09-v2/GEN-SIM-RECO	Po
Z_2e_powheg	/Zee_M20_CTEQ66-powheg/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Po
ZJets	/ZJets-madgraph/Summer10-START37_V5_S09-v1/GEN-SIM-RECO	m
W_tn	/Wtaunu/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
W_mn	Wmunu/Summer10-START36_V9_S09-v2/GEN-SIM-RECO	Py
W_mn_plus_powheg	/WplusToMuNu-CTEQ66-powheg/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Po
W_mn_minus_powheg	/WminusToMuNu-CTEQ66-powheg/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Po
W_en	Wenu/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
W_en_plus_powheg	/WplusToENu-CTEQ66-powheg/Summer10-START36_V9_S09-v2/GEN-SIM-RECO	Po
W_en_minus_powheg	/WminusToENu-CTEQ66-powheg/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Po
WJets	/WJets-madgraph/Summer10-START37_V5_S09-v1/GEN-SIM-RECO	m
ZJets_2e1j_PT015	/ZeeJet_Pt0to15/Summer10-START36_V9_S09-v2/GEN-SIM-RECO	Py
ZJets_2e1j_PT1520	/ZeeJet_Pt15to20/Summer10-START36_V9_S09-v2/GEN-SIM-RECO	Py
ZJets_2e1j_PT2030	/ZeeJet_Pt20to30/Summer10-START36_V9_S09-v2/GEN-SIM-RECO	Py
ZJets_2e1j_PT3050	/ZeeJet_Pt30to50/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2e1j_PT5050	/ZeeJet_Pt50to80/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2e1j_PT80120	/ZeeJet_Pt80to120/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py

Process	DB Location	G
ZJets_2e1j_PT120170	/ZeeJet_Pt120to170/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2e1j_PT170230	/ZeeJet_Pt170to230/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2e1j_PT230300	/ZeeJet_Pt230to300/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2e1j_PT300	/ZeeJet_Pt300toInf/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT015	/ZmumuJet_Pt0to15/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT1520	/ZmumuJet_Pt15to20/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT2030	/ZmumuJet_Pt20to30/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT3050	/ZmumuJet_Pt30to50/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT5050	/ZmumuJet_Pt50to80/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT80120	/ZmumuJet_Pt80to120/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT120170	/ZmumuJet_Pt120to170/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT170230	/ZmumuJet_Pt170to230/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT230300	/ZmumuJet_Pt230to300/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Py
ZJets_2m1j_PT300	/ZmumuJet_Pt300toInf/Summer10-START36_V9_S09-v2/GEN-SIM-RECO	Py

DiPhotons

Process	DB Location	Generato
2Gam_Box_PT1025	/DiPhotonBox_Pt10to25/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia
2Gam_Box_PT25250	/DiPhotonBox_Pt25to250/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia
2Gam_Box_PT250INF	/DiPhotonBox_Pt250toInf/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia
2Gam_Born_PT1025	/DiPhotonBorn_Pt10to25/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia
2Gam_Born_PT25250	/DiPhotonBorn_Pt25to250/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia
2Gam_Born_PT250INF	/DiPhotonBorn_Pt250toInf/Spring10-START3X_V26_S09-v1/GEN-SIM-RECO	Pythia

Backgrounds

Process	DB Location	Genera
QCD_EM80170	/QCD_EMEnriched_Pt80to170/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia

Process	DB Location	Genera
QCD_EM3080	/QCD_EMEnriched_Pt30to80/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
QCD_EM2030	/QCD_EMEnriched_Pt20to30/Summer10-START36_V9_S09-v2/GEN-SIM-RECO	Pythia
QCD_bc80170	/QCD_BCtoE_Pt80to170/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
QCD_bc3080	/QCD_BCtoE_Pt30to80/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
QCD_bc2030	/QCD_BCtoE_Pt20to30/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
QCD_Mu	/InclusiveMu15/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
QCD_PT20	/QCD_Pt-20_TuneD6T_7TeV-pythia6/Summer10-START36_V10-v1/GEN-SIM-RECO	Pythia
ttbar	/TTbar/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT015	/PhotonJet_Pt0to15/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT1520	/PhotonJet_Pt15to20/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT2030	/PhotonJet_Pt20to30/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT3050	/PhotonJet_Pt30to50/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT5080	/PhotonJet_Pt50to80/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT80120	/PhotonJet_Pt80to120/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT120170	/PhotonJet_Pt120to170/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT170300	/PhotonJet_Pt170to300/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT300500	/PhotonJet_Pt300to500/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT500	/PhotonJet_Pt500toInf/Summer10-START36_V9_S09-v1/GEN-SIM-RECO	Pythia
GamJet_PT15	/PhotonJet_Pt15/Summer10-START36_V9_S09-v1/GEN-SIM-RECODEBUG	Pythia
GamJet_PT30	/PhotonJet_Pt30/Summer10-START36_V9_S09-v1/GEN-SIM-RECODEBUG	Pythia
GamJet_PT80	/PhotonJet_Pt80/Summer10-START36_V9_S09-v1/GEN-SIM-RECODEBUG	Pythia
GamJet_PT170	/PhotonJet_Pt170/Summer10-START36_V9_S09-v1/GEN-SIM-RECODEBUG	Pythia
GamJet_PT300	/PhotonJet_Pt300/Summer10-START36_V9_S09-v1/GEN-SIM-RECODEBUG	Pythia
GamJet_PT470	/PhotonJet_Pt470/Summer10-START36_V9_S09-v1/GEN-SIM-RECODEBUG	Pythia

Fall10 MonteCarlo datasets (Production in progress)

Take care, still missing jobs and datasets Check the repository /home/gpfs/manip/mnt/cms/data/ntuple/Ntuple_v04_Fall10 to see what is available. Several complementary datasets are still present in /home/gpfs/manip/mnt/cms/data/ntuple/Ntuple_v04_Summer10.

Multibosons

Process	DB Location
WW	/WWtoAnything_TuneZ2_7TeV-pythia6-tauola/Fall10-START38_V12-v1/GEN-SIM-RECO
WW_PU	/WWtoAnything_TuneZ2_7TeV-pythia6-tauola/Fall10-E7TeV_ProbDist_2010Data_BX156_START3
WW_2l2n	/WWTo2L2Nu_TuneZ2_7TeV-pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
WW_2l2n_PU	/WWTo2L2Nu_TuneZ2_7TeV-pythia6/Fall10-E7TeV_ProbDist_2010Data_BX156_START38_V12-
ZZ	/ZZtoAnything_TuneZ2_7TeV-pythia6-tauola/Fall10-START38_V12-v1/GEN-SIM-RECO
ZZ_PU	/ZZtoAnything_TuneZ2_7TeV-pythia6-tauola/Fall10-E7TeV_ProbDist_2010Data_BX156_START38
WZ	/WZtoAnything_TuneZ2_7TeV-pythia6-tauola/Fall10-START38_V12-v1/GEN-SIM-RECO
WZ_PU	/WZtoAnything_TuneZ2_7TeV-pythia6-tauola/Fall10-E7TeV_ProbDist_2010Data_BX156_START3
WZ_3ln	/WZTo3LNu_TuneZ2_7TeV-pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
WZ_3ln_PU	/WZTo3LNu_TuneZ2_7TeV-pythia6/Fall10-E7TeV_ProbDist_2010Data_BX156_START38_V12-v1
WGam	/WGtoLNuG_TuneZ2_7TeV-pythia6-tauola/Fall10-START38_V12-v1/GEN-SIM-RECO
ZGam	/ZGtoLLG_TuneZ2_7TeV-pythia6-tauola/Fall10-START38_V12-v1/GEN-SIM-RECO
ZZ_4l	-
ZZ_2l2n	-

Single bosons

Process	DB Location
Z_2t_PU	/DYToTauTau_M-20_TuneZ2_7TeV-pythia6-tauola/Fall10-E7TeV_ProbDist_2010Data_BX156_START
Z_2e_PU	/DYToEE_M-20_TuneZ2_7TeV-pythia6/Fall10-E7TeV_ProbDist_2010Data_BX156_START38_V12-v1/
W_tn_PU	/WToTauNu_TuneZ2_7TeV-pythia6-tauola/Fall10-E7TeV_ProbDist_2010Data_BX156_START38_V12-
W_en_PU	/WToENu_TuneZ2_7TeV-pythia6/Fall10-E7TeV_ProbDist_2010Data_BX156_START38_V12-v1/GEN-
WJets_PU	/WJetsToLNu_TuneZ2_7TeV-madgraph-tauola/Fall10-E7TeV_ProbDist_2010Data_BX156_START38_V
ZJets_PU	/DYJetsToLL_TuneZ2_M-50_7TeV-madgraph-tauola/Fall10-START38_V12-v2/GEN-SIM-RECO

DiPhotons

Process	DB Location	Generator	Simulation type	Order	Simulation specificities	Number of events	Xsection	Filter	Filter specificities	Eff Xsection	K

Backgrounds

Process	DB Location
QCD_EM80170	/QCD_Pt-80to170_EMEnriched_TuneZ2_7TeV-pythia6/Fall10-START38_V12-v1/GEN-SIM-R
QCD_EM3080	/QCD_Pt-30to80_EMEnriched_TuneZ2_7TeV-pythia6/Fall10-START38_V12-v1/GEN-SIM-RE
QCD_EM2030	/QCD_Pt-20to30_EMEnriched_TuneZ2_7TeV-pythia6/Fall10-START38_V12-v1/GEN-SIM-RE
QCD_bc80170	/QCD_Pt-80to170_BCtoE_TuneZ2_7TeV-pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
QCD_bc3080	/QCD_Pt-30to80_BCtoE_TuneZ2_7TeV-pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO

Process	DB Location
QCD_bc2030	/QCD_Pt-20to30_BCtoE_TuneZ2_7TeV-pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
QCD_1530	/QCD_Pt_15to30_TuneZ2_7TeV_pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
QCD_3050	/QCD_Pt_30to50_TuneZ2_7TeV_pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
QCD_5080	/QCD_Pt_50to80_TuneZ2_7TeV_pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
ttbar	/TT_TuneZ2_7TeV-pythia6-tauola/Fall10-START38_V12-v1/GEN-SIM-RECO
GamJet_PT1530	/G_Pt_15to30_TuneZ2_7TeV_pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
GamJet_PT3050	/G_Pt_30to50_TuneZ2_7TeV_pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
GamJet_PT5080	/G_Pt_50to80_TuneZ2_7TeV_pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
GamJet_PT80120	/G_Pt_80to120_TuneZ2_7TeV_pythia6/Fall10-START38_V12-v1/GEN-SIM-RECO
GamJet_EM20_PU	/GJet_Pt-20_doubleEMEnriched_TuneZ2_7TeV-pythia6/Fall10-E7TeV_ProbDist_2010Data_BX

Winter10 MonteCarlo datasets (Production completed)

Take care, all samples are generated with pileup, and Higgs sampels are genrated in 2011 LHC conditions

Multibosons

Process	DB Location
WW	/WWtoAnything_TuneZ2_7TeV-pythia6-tauola/Winter10-E7TeV_ProbDist_2010Data_BX156_STAR
WW_2l2n	/WWTo2L2Nu_TuneZ2_7TeV-pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_START39_V8
gg_WW_2l2n	/GluGluToWWTo4L_TuneZ2_7TeV-gg2ww-pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_
WZ	/WZtoAnything_TuneZ2_7TeV-pythia6-tauola/Winter10-E7TeV_ProbDist_2010Data_BX156_START
WZ_3ln	/WZTo3LNu_TuneZ2_7TeV-pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_START39_V8-v
ZZ	/ZZtoAnything_TuneZ2_7TeV-pythia6-tauola/Winter10-E7TeV_ProbDist_2010Data_BX156_START
ZZ_2l2n	/ZZTo2L2Nu_TuneZ2_7TeV-pythia6-tauola/Winter10-E7TeV_ProbDist_2010Data_BX156_START3
VGam	/PhotonVJets_7TeV-madgraph/Winter10-E7TeV_ProbDist_2010Data_BX156_START39_V8-v1/AOD

Single bosons

Process	DB Location
Z_2t	/DYToTauTau_M-20_CT10_TuneZ2_7TeV-powheg-pythia-tauola/Winter10-E7TeV_ProbDist_2010Data_B
Z_2m	/DYToMuMu_M-20_CT10_TuneZ2_7TeV-powheg-pythia/Winter10-E7TeV_ProbDist_2010Data_BX156_
Z_2e	/DYToEE_M-20_CT10_TuneZ2_7TeV-powheg-pythia/Winter10-E7TeV_ProbDist_2010Data_BX156_STA
WJets	/WJetsToLNu_TuneZ2_7TeV-madgraph-tauola/Winter10-E7TeV_ProbDist_2010Data_BX156_START39_

Higgs

Process	DB Location
gg_H_GamGam_M120	/GluGluToHToGG_M-120_7TeV-powheg-pythia6/Winter10-E7TeV_ProbDist_2011Flat_BX
gg_H_GamGam_M130	/GluGluToHToGG_M-130_7TeV-powheg-pythia6/Winter10-E7TeV_ProbDist_2011Flat_BX
gg_H_GamGam_M140	/GluGluToHToGG_M-140_7TeV-powheg-pythia6/Winter10-E7TeV_ProbDist_2011Flat_BX

Top events

Process	DB Location
ttbar	/TTJets_TuneZ2_7TeV-madgraph-tauola/Winter10-E7TeV_ProbDist_2010Data_BX156_START39_V8-v1/
TW	/TToBLNu_TuneZ2_tW-channel_7TeV-madgraph/Winter10-E7TeV_ProbDist_2010Data_BX156_START3
T_schan	/TToBLNu_TuneZ2_s-channel_7TeV-madgraph/Winter10-E7TeV_ProbDist_2010Data_BX156_START39_
T_tchan	/TToBLNu_TuneZ2_t-channel_7TeV-madgraph/Winter10-E7TeV_ProbDist_2010Data_BX156_START39_

QCD Backgrounds

Process	DB Location
QCD_EM80170	/QCD_Pt-80to170_EMEnriched_TuneZ2_7TeV-pythia6/Winter10-E7TeV_ProbDist_2010Data_E
QCD_EM3080	/QCD_Pt-30to80_EMEnriched_TuneZ2_7TeV-pythia6/Winter10-E7TeV_ProbDist_2010Data_BX
QCD_EM2030	/QCD_Pt-20to30_EMEnriched_TuneZ2_7TeV-pythia6/Winter10-E7TeV_ProbDist_2010Data_BX
QCD_bc80170	/QCD_Pt-80to170_BCtoE_TuneZ2_7TeV-pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156
QCD_bc3080	/QCD_Pt-30to80_BCtoE_TuneZ2_7TeV-pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_
QCD_bc2030	/QCD_Pt-20to30_BCtoE_TuneZ2_7TeV-pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_
QCD_Mu	/QCD_Pt-20_MuEnrichedPt-15_TuneZ2_7TeV-pythia6/Winter10-E7TeV_ProbDist_2010Data_B
GamJet_PT015	/G_Pt_0to15_TuneZ2_7TeV_pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_START39_
GamJet_PT1530	/G_Pt_15to30_TuneZ2_7TeV_pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_START39
GamJet_PT3050	/G_Pt_30to50_TuneZ2_7TeV_pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_START39
GamJet_PT5080	/G_Pt_50to80_TuneZ2_7TeV_pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_START39
GamJet_PT80120	/G_Pt_80to120_TuneZ2_7TeV_pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_START3
GamJet_PT120170	/G_Pt_120to170_TuneZ2_7TeV_pythia6/Winter10-E7TeV_ProbDist_2010Data_BX156_START

Ntuples versions

Ntuples v01

Contain most of physics objects :

- Electrons
- Muons
- Photons
- CaloJets
- MET
- Z into electrons
- Z into muons

v01 Ntuples don't contain any trigger information. Isolation variables (track, ECAL, HCAL) for electrons and muons are also missing.

Ntuples v02

- Added IsolationDeposits (trackIsoDeposits, ECALIsoldeposits, HCALIsoDeposits) as tables for electrons and muons. It permits to compute different isolation configurations without regeneration of Ntuples.
- Added HLT informations as run informations : large string containing all trigger names used during the generation/reconstruction of the event. A little c++ algorithm permits to retrieve trigger names from the string. Each HLT acceptance bit is stored in an ordonate table, indentation corresponding to the indentation of the trigger name list.
- Added cross sections and generation filter informations as run informations.

Ntuples v03

See Complete v03 release notes

Ntuples v04

- Added links between objects (e.g. electron <-> SuperCluster)
- Added new photon variables
- Added vertex quality variables

Ntuples v05

- Fix HLT names bug, now HLT lines are listed properly and automatically as in standard PAT algorithms
- Changed electron isolation variable names to be consistent with algorithm used. dR03 and dR04 iso variables are available now. (Take care, in previous definition standard variables are named dR04 in AnaNaS, whereas dR03 cones algorithms were used).
- Added the number of TOTAL PROCESSED events in runSummary, takes into account the number of events failed in filters applied BEFORE the NtupleMaker.
- Added global boolean for trackRechit, based of the configuration parameter fillTrackRecHitTuples : when trackRecHits are disentangled, all trackRecHit infos are suppressed. Needed to run on AOD.
- Fix trackJet bug, collections are now available correctly
- Basic configuration changes (major part of changes are applied in ghmAnalysis_7TeV.py file)
    - By default PAT jets are pfJets cleaned (e.g no jet coming from identifed pfElectron) with PF2PAT and are ES corrected. Other pfJets collections are not cleaned.

- Calo and PF METs corrected from energy scale and unclustered energy are available by default.
- Reduced EcalRecHit are used by default as EcalRecHit collection.
- Electron isolation does not need user definition anymore.
- Remove KT, SIS, IC jet algorithms
- TrackRecHits are disabled by default (AOD purpose)
- Access to PF2PAT collections is now possible with PAT running on RECO collections, already used for jets and MET.

Name Convention

The name has the form : x_y_z
x is usually the process. y and z are the decay channels or the filter applied.
The processes and filters contains full names (Z, WZ, ZGamma, ZJets, ZZJets, etc. ; EM2030, PT2030, PTZ20 (filter on Z pt > 20 GeV), etc.)
The decay products are classified :

Physic element	electron	muon	tau	general lepton	"electronic or muonic" lepton	neutrino	jet (inclusive)	jet (exclusive)	b jet (inclusive)	b jet (exclusive)
notation	e	m	t	l	L	n	j	J	b	B

Some examples :
Z into electrons -> Z_2e
ZZ into 4 leptons -> ZZ_4l
ZZinto 2 leptons and 2 neutrinos -> ZZ_2l2n
QCD with filter 15<pt QCD_PT1530
ZGamma with filter Gamma pt>40 : ZGam_PTG40
ZZ into 2 "e or m " leptons and 2 taus decayed into 2 "e or m" leptons -> ZZ_2L2t_4L

Available HLT for Summer08 Datasets

Electron HLT

Name	L1 Seed	Threshold (GeV)	Specificities	L1 Prescale	HL Prescale
HLT_Ele10_SW_L1R	L1_SingleEG5	Et > 10	SW, L1R	1	10
HLT_Ele15_SW_L1R	L1_SingleEG8	Et > 15	SW, L1R	1	5
HLT_Ele15_LW_L1R	L1_SingleEG8	Et > 15	LW, L1R	1	5
HLT_IsoEle15_L1I	L1_SingleEG12	Et > 15	Iso,L1I	1	1
HLT_IsoEle18_L1R	L1_SingleEG15	Et > 18	Iso,L1R	1	1
HLT_IsoEle15_LW_L1I	L1_SingleEG12	Et > 15	Iso, LW, L1I	1	1
HLT_LooseIsoEle15_LW_L1R	L1_SingleEG12	Et > 15	LooseIso, LW, L1R	1	5
HLT_DoubleIsoEle10_L1I	L1_DoubleIsoEG8	Et > (10,10)	2Iso, L1I	1	1
HLT_DoubleIsoEle12_L1R	L1_DoubleIsoEG10	Et > (12,12)	2Iso, L1R	1	1
HLT_DoubleIsoEle10_LW_L1I	L1_DoubleIsoEG8	Et > (10,10)	2Iso, LW, L1I	1	1
HLT_DoubleIsoEle12_LW_L1R	L1_DoubleIsoEG10	Et > (12,12)	2Iso, LW, L1R	1	1
HLT_DoubleEle5_SW_L1R	L1_DoubleEG5	Et > (5,5)		1	10

Name	L1 Seed	Threshold (GeV)	Specificities	L1 Prescale	HL Prescale
			2Iso, SW, L1R		
HLT_DoubleEle10_LW_OnlyPixelM_L1R	L1_DoubleEG5	Et > (10,10)	2Iso, LW, L1R	1	1
HLT_DoubleEle10_Z	L1_DoubleIsoEG8	Et > (10,10)		1	1
HLT_DoubleEle6_Exclusive	L1_ExclusiveDoubleIsoEG6	Et > (6,6)		1	1

L1R : Level1 relaxed trigger
L1I : Level1 isolated trigger
Iso : Isolated HL trigger
2Iso : double isolated trigger
SW : Startup window
LW : Large window
, : Missing informations about these triggers.

Muon HLT

Name	L1 Seed	Threshold (GeV)	Specificities	L1 Prescale	HL Prescale
HLT_L1Mu	L1_SingleMu7, L1_DoubleMu3	?	no L1	1	20
HLT_L1MuOpen	L1_SingleMuOpen	?	no L1	150	1
HLT_L2Mu9	L1_SingleMu7	Et > 9	L2	1	1
HLT_IsoMu9	L1_SingleMu7	Et > 9	Iso	1	1
HLT_IsoMu11	L1_SingleMu7	Et > 11	Iso	1	1
HLT_IsoMu13	L1_SingleMu10	Et > 13	Iso	1	1
HLT_IsoMu15	L1_SingleMu10	Et > 15	Iso	1	1
HLT_Mu3	L1_SingleMu3	Et > 3	/	80	1
HLT_Mu5	L1_SingleMu5	Et > 5	/	80	1
HLT_Mu7	L1_SingleMu7	Et > 7	/	1	1
HLT_Mu9	L1_SingleMu7	Et > 9	/	1	1
HLT_Mu11	L1_SingleMu7	Et > 11	/	1	1
HLT_Mu13	L1_SingleMu10	Et > 13	/	1	1
HLT_Mu15	L1_SingleMu10	Et > 15	/	1	1
HLT_Mu15_L1Mu7	L1_SingleMu7	Et > 16	?	1	1
HLT_Mu15_Vtx2cm	L1_SingleMu7	Et > 16	?	1	1
HLT_Mu15_Vtx2mm	L1_SingleMu7	Et > 16	?	1	1
HLT_DoubleIsoMu3	L1_DoubleMu3	Et > (3,3)	2Iso	1	1
HLT_DoubleMu3	L1_DoubleMu3	Et > (3,3)	/	1	1
HLT_DoubleMu3_Vtx2cm	L1_DoubleMu3	Et > (3,3)	?	1	1
HLT_DoubleMu3_Vtx2mm	L1_DoubleMu3	Et > (3,3)	?	1	1
HLT_DoubleMu3_JPsi	L1_DoubleMu3	Et > (3,3) , 6 > Minv > 1	/	1	1
HLT_DoubleMu3_Upsilon	L1_DoubleMu3	Et > (3,3)	?	1	1
HLT_DoubleMu7_Z	L1_DoubleMu3	Et > (7,7)	/	1	1
HLT_DoubleMu3_SameSign	L1_DoubleMu3	Et > (3,3)	SameSign	1	1
HLT_DoubleMu3_Psi2S	?	?	?	?	?

Iso : Isolated HL trigger

2Iso : double isolated trigger
SameSign : leptons have the same charge

MET HLT

Name	L1 Seed	Threshold (GeV)	Specificities	L1 Prescale	HL Prescale
HLT_L1MET20	L1_ETM20	Et > 20	/	1	500
HLT_MET25	L1_ETM20	Et > 25	/	1	50
HLT_MET35	L1_ETM35	Et > 35	/	1	1
HLT_MET50	L1_ETM40	Et > 50	/	1	1
HLT_MET65	L1_ETM50	Et > 65	/	1	1
HLT_MET75	L1_ETM50	Et > 75	/	1	1
HLT_MET35_HT350	L1_HTT300	(350,65) ??	?	1	1

L1 Seeds

L1 Seeds

Revisions

-- PhilippeGras - 29-Apr-2010 - Added AnaNaS instructions

Permissions

- Set ALLOWTOPICCHANGE = CMSSaclayGroup

This topic: Main > SaclayEWKAnalysis
Topic revision: r54 - 2011-05-27 - unknown