



Stato produzione MC12

- **Sommario del Physics Coordination di ieri**
- *Ambasciator non porta pena*

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MC12 status

- MC12 started, 1st week in March (high prio. evgen+G4)
- MC12a bulk digi+reco started **yesterday**
- Sample Summary:
- **Core physics samples:**
 - MB samples for pileup (both Pythia8 A2M and PYTHIA6 AMBT2B-CTEQ6L1), 40M in total;
 - simulation done twice (in 17.1.4.6, 17.2.0.2) i.e. 80M (due to electron multiple scattering bug)
 - final Pythia8 pileup samples (s1469) done & distributed to grid for **MC12 digi+reco start** – see later (final PYTHIA6 alternative pileup samples almost done; merging)
 - MB for physics (Pythia8 & PYTHIA6), Pythia8 QCD jet (various PDFs, tunes,(un)weighted), POWHEG+Pythia8 & Sherpa W/Z/photon, ...
 - >400M events requested for simulation, so far
(NB includes some samples run with Frozen Showers, which were then resubmitted without FS)
- **Performance samples:**
 - egamma, jet-etmiss (incl. extension to core physics samples), tau; >100M requested, so far
- **Further physics samples** now coming in:
 - 5M SUSY, 11M Higgs requested as of today; also expect MC@NLO ttbar, Alpgen+HERWIG/PYTHIA W/Z+jets soon (+ further Higgs, SUSY,...)
- More information (and current spreadsheet) on tWiki's, linked from:
 - https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/AtlasProductionGroup#Specific_Information_on_MC_campaigns
 - https://twiki.cern.ch/twiki/bin/viewauth/Atlas/RunDMC#Current_profiles
 - (New) direct link to MC12a tWiki: <https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/AtlasProductionGroupMC12a>

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MC12 status

Actually ~13M/d.
No stat yet for
digi+reco.
Expected ~30M/d
if no competition

- **Generally running very well**

- **Current status for G4** (only Prio0 and 1 requested/submitted so far):
- **MC12 G4 rate above 10M per day** (i.e. not counting ongoing MC11 requests)
- Priority 0: fullsim 504M requested; **72% done** ; AF-II 91M requested; **12% done**
- Priority 1: fullsim 51M requested; **51% done**

- Fullsim high prio sample break-down:
- group Tau done=13.02 requested=14.47 fraction=0.90
- group Higgs done=0.00 requested=11.20 fraction=0.00
- group JetEtmiss done=10.78 requested=23.00 fraction=0.47
- group SUSY done=0.00 requested=4.76 fraction=0.00
- group Egamma done=64.30 requested=71.60 fraction=0.90
- group physics done=301.61 requested=429.80 fraction=0.70
- **TOTAL ALL PRIO FULLSIM G4 done=389.72 requested=554.83 fraction=0.70**

G4 numbers include 2× MB pileup, and 26.4M events initially run with Frozen Showers, and then resubmitted without FS (not to be used for physics); included here to give idea of total throughput. **Not including those numbers gives a total of 67% done for fullsim G4.**

**Di-jets,
W/Z+jets
Campioni di calibrazione
Higgs: fondo WW**

- **Digi+Reco** – bulk production started yesterday (Prio 0&1 perf. + Prio0 physics); in parallel with final physics validation; using new random number service (expect 20% speedup at high mu); [slow startup due to many group production tasks]
- (also 6M no-pileup digi+reco MB samples already submitted (and done) 1.5 weeks ago)

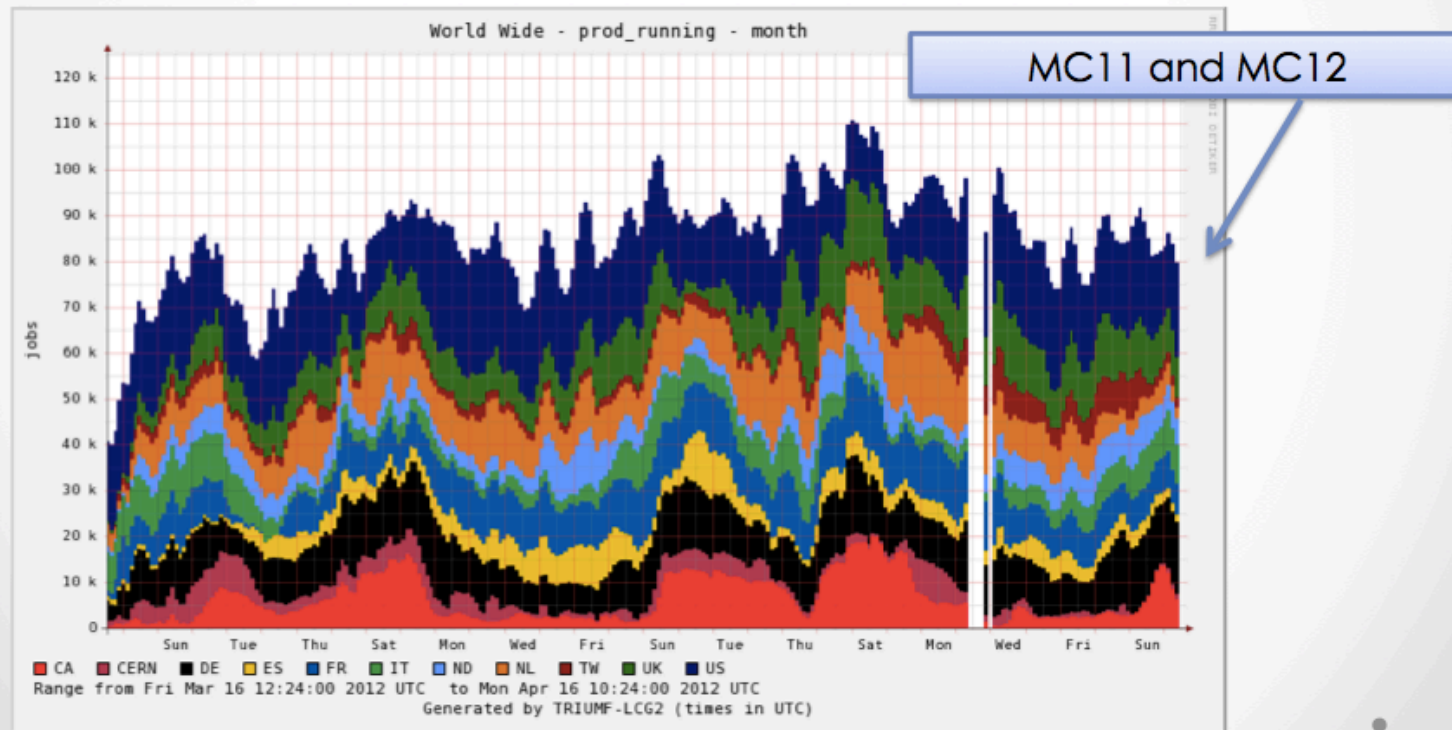
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MC production status

MC11c also ongoing – new requests needed for physics

Total event numbers:

G4: fullsim: 1.87B requested; 95% done; AF-II 1.47B requested; 95% done
digi+reco: fullsim: 1.87B; 96% done; AF-II sim: 1.63B requested; 92% done



J. Boyd

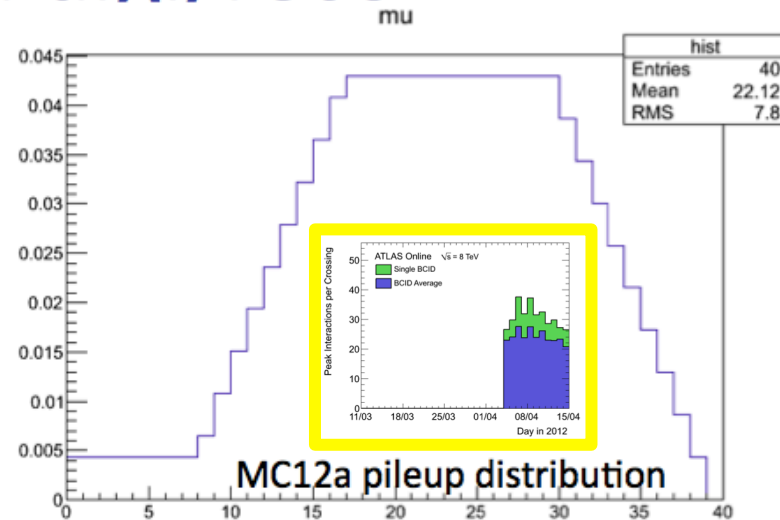
MC12a digi/reco

- Validation of close-to-final setup with 17.2.1.3 launched last weekend – includes
 - Final conditions (updated Jet, b-tagging, e-gamma crack calibrations + new muon chambers on...)
 - Final pileup distribution
 - LAr OFC optimized for high pileup (as detector is running with in 2012)
 - Close-to-final trigger setup (v4 menu)
- Task 1 at Physics validation of that at meeting last Wednesday
 - <https://indico.cern.ch/conferenceDisplay.py?confId=184528>
 - No show-stoppers identified (fix needed for MET electron term identified)
- In parallel various fixes in trigger (updated alg's, menu and mem leak fixes) validated with sampleT in TrigMC cache
 - Note the MC12a trigger is missing the final setup for a few triggers (but the info to emulate the final configuration is in the AOD)
- 17.2.1.4 build to merge in all fixes
- MC12a digi/reco launched yesterday – r3542 tag
 - unfortunately not running yet due to grid problems – computing experts following up
 - running with new random number service from J. Chapman & M. Duehrssen improves digi speed at high pileup by ~20%!
 - More details on the setup on this wiki:
<https://twiki.cern.ch/twiki/bin/viewauth/Atlas/MC12aWiki>

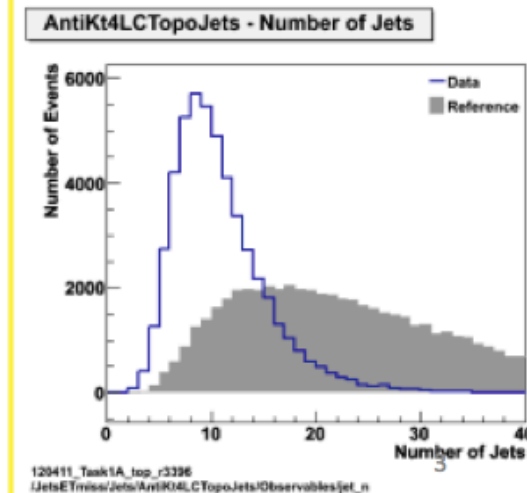
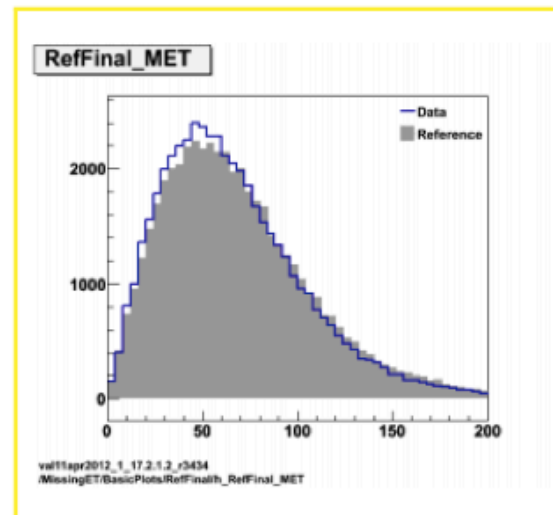
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MC12a digi/reco

In validation of MC12 jobs we noticed some jobs hitting the 4GB hard memory limit (for 32-bit system). Since then some memory leaks have been fixed – but it is not clear if this problem is fully solved. Need to watch carefully. Developing a workflow where trigger and reco are run in separate jobs as a backup solution.



Large change in Njets distribution (dominated by low Pt (~ 10 GeV) jets) due to change in LAr OFCs. Basically reducing jets from pileup. Improvement in MET resolution for same reason.



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Status as of April 16, 2012

| Jet physics, prompt photons | | | | | | | |
|-----------------------------|-----------------------------------|------------------------|--------------------------|-----|------------|--|--|
| Generator | PDF | Tune | Input events (7 & 8 TeV) | JOs | Validation | Approx Nevts | People |
| Inclusive dijets | | | | | | | |
| Pythia8 | CT10 CT10+CTEQ6L1 (NNPDF21) | AU2 AU2 AU2 | | ● | ● | 1M (per jet slice) 400k (per jet slice) 400k (per jet slice) | Andy Buckley, Pavel Starovoitov |
| POWHEG+Pythia8 | CT10 CT10+CTEQ6L1 | AU2 AU2 | ● ● | ● | ● | | James Monk |
| POWHEG+Herwig++ | CT10+CTEQ6L1 | EE3 | ● ● | ● | ● | | James Monk |
| Multijets | | | | | | | |
| Sherpa | CT10 | Default | ● ● | ● | ● | | Frank Siegert, Christian Schillo |
| AlpGen+HERWIG | CTEQ6L1 | P2011C | ● ● | ● | ● | | Michael Stoebe |
| AlpGen+PYTHIA6 | CTEQ6L1 | P2011C | ● ● | ● | ● | | Michael Stoebe |
| Photon-jet and diphoton | | | | | | | |
| Pythia8 | CTEQ6L1 | AU2 | | ● | ● | | Matthew Relich |
| Herwig++ | CTEQ6L1 | EE3 | | ● | ● | | |
| Sherpa | CT10 | Default | ● ● | ● | ● | 10M (MC11 stats) | Frank Siegert, Christian Schillo, Giovanni Marchiori |
| AlpGen+PYTHIA6 | CTEQ6L1 | P2011C | ● ● | ● | ● | | Higgs group |

<https://twiki.cern.ch/twiki/bin/viewauth/AtlasProtected/AtlasMCProductionM12CoreConf>

Molti generatori non ancora pronti: dettagli sulla wiki

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MC12 Bulk Sample Requests

- **Suggested procedure:**
 - **Physics group MC contacts request samples**
 - Arrange DSIDs (together with MC group production coordinators)
 - Prepare input files (if any), job options and spread sheet
 - Have all data and configurations registered and distributed for production (with MC group responsables)
 - Send copy of spread sheet with some brief text to MC bulk production managers and PC
 - **Production approval**
 - MC bulk production managers & PC check request versus existing/running production and get technical ok from MC production coordinators
 - Consult with physics group MC contacts and MC production coordinators in case of suspected duplication (high level of similarity/large sample overlaps)
 - Notify production team if approved by PC
- **Note: non-bulk signal samples**
 - **Same procedure as for MC11**
 - Register configuration with MC group production team
 - Request production from PC