

Group Production Challenges

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KEK

Software & Computing Workshop

7 April 2011

Group Production Related Talks

- Group production session on TUE

16:30 - 18:30

Group Production

EVO : <http://evo.caltech.edu/evoNext.2.7/koala.jnlp?meeting=M2MvMB2e28DaDB9I9IDM92>

password : group

This session will start after ATLAS Open Executive Board. The exact start time will be announced to atlas-comp-group-production@cern.ch.

Convener: Junji Tojo (KEK)

Location: 40-S2-C01 - Salle Curie

16:30 Introduction 20'

Speaker: Junji Tojo (KEK)

Material: [Slides](#)  

16:50 Software coordination for group production (from PAT) 20'

Speaker: Karsten Koeneke (CERN)

Material: [Slides](#) 

17:10 Group space with global quota 20'

Speaker: I Ueda (U-Tokyo/ICEPP)

Material: [Slides](#)  [more information](#) 

17:30 Monitoring of group production tasks 20'

Speaker: Stephane Jezequel (Laboratoire d'Annecy-le-Vieux de Physique des Particules (LAPP))

17:50 Discussions 30'

<https://indico.cern.ch/conferenceDisplay.py?confId=119169#7>

Group Production Related Talks

- PAT session on THU

09:00 - 12:30	Physics Analysis Tools/Distributed Analysis 
	Conveners: Johannes Elmsheuser (Ludwig-Maximilians-Universität München), Amir Farbin (University of Texas at Arlington), Karsten Koeneke (CERN), Dan van der Ster (CERN)
	Location: 40-S2-C01 - Salle Curie
09:00	Introduction 10' 
	Speakers: Amir Farbin (University of Texas at Arlington), Karsten Koeneke (CERN)
	Material: Slides 
09:20	Group Production 10' 
	Speaker: Junji Tojo (KEK)
	Material: Slides  
09:40	DAOD and D3PD experiences 10' 
	Speaker: David Cote (CERN)
	Material: Slides 

<https://indico.cern.ch/conferenceDisplay.py?confId=119169#3>

Group Production

- Group production on the ATLAS production system becomes one of major production activities for more than a year, to quickly/efficiently deliver the derived datasets (DAODs and NTUPs) to groups.
- Organizing the production
 - Group production coordination
 - Contact persons from groups

<https://twiki.cern.ch/twiki/bin/view/AtlasProtected/AtlasGroupProduction>

Group Production Coordination

Name	Role
Junji Tojo	Group production coordinator
Borut Kersevan	Production team leader
Alexei Klimentov	ADC
Pavel Nevski	Grid Data Processing
Rod Walker	Grid Data Processing
Kaushik De	Grid Data Processing
Sasha Vaniachine	Grid Data Processing
Jaroslava Schovancova	ADCoS

Groups and Contact Persons (1/2)

Group	Sub-group	Contact person
ID	Pixel	-
	SCT	Peter Rosendahl
	TRT	Thomas Koffas
LAr	-	Sven Menke
Tile	-	(Serguei Yanush)
Trigger	L1Calo	John Morris
	Muon	Takayuki Konno
Data Preparation	-	Jamie Boyd, Beate Heinemann
Egamma	-	Andrea Bocci
Jet/MET	-	Toshi Sumida
Flavor-tagging	-	Johanna Fleckner, Agnieszka Leyko, Hendrik Esch
MCP	-	Geert-Jan Besjes

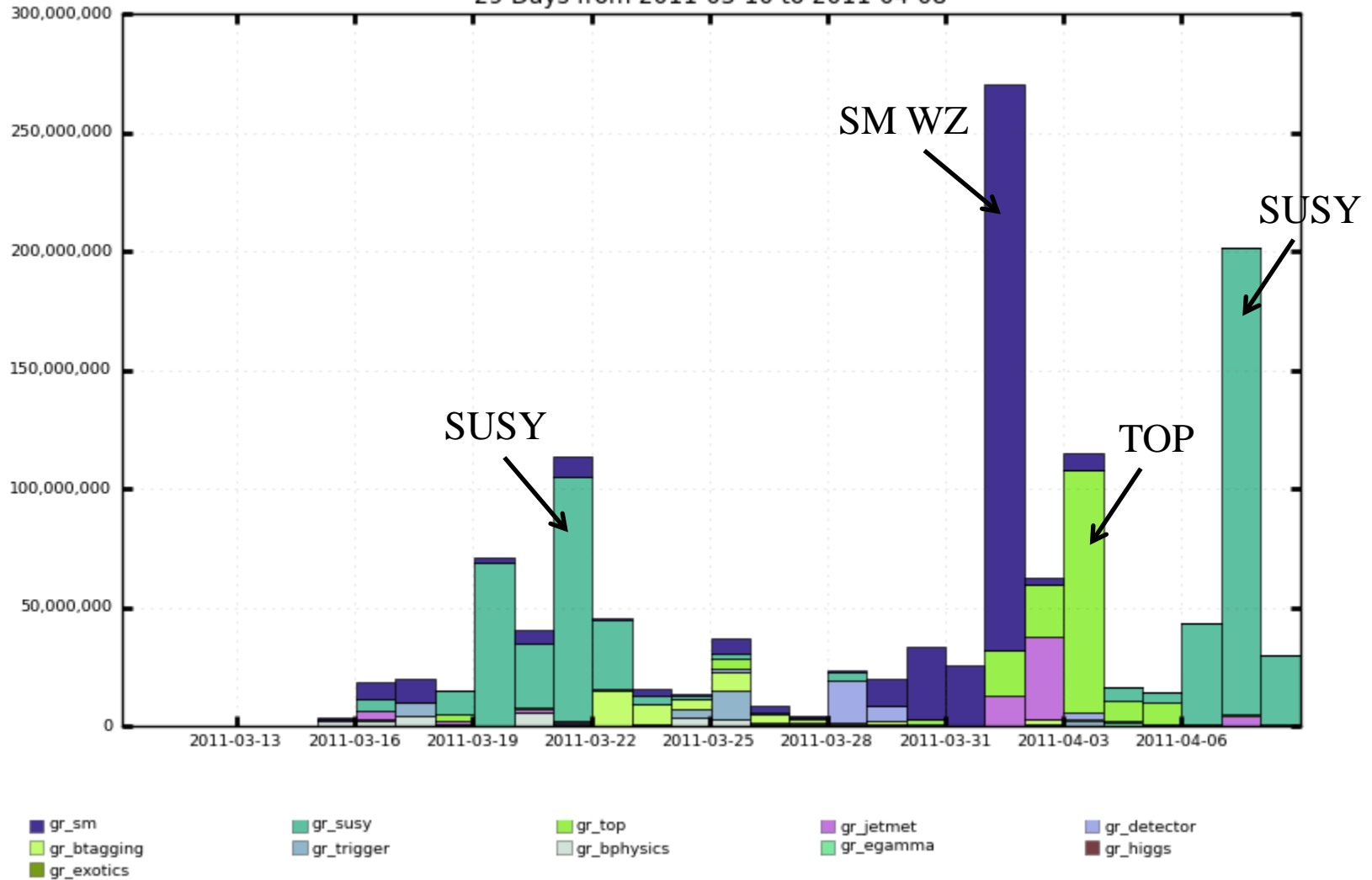
Groups and Contact Persons (2/2)

Group	Sub-group	Contact person
SM	MinBias	-
	WZ	Andreas Reinsch
	Direct photon	Leonardo Carminati
	EW	Haijun Yang
SUSY	-	David Cote, Katarina Pajchel
	R-Parity Violating/Long-lived	Nick Barlow, Christian Ohm, Jackson Paul
Top	-	Ulrich Husemann, Douglas Smith, Minoru Hirose
Exotics	-	Michiru Kaneda, John Butler
Higgs	-	Andrea Di Simone

CPU Consumption in Recent Days

CPU consumptions Good Jobs (Time Stacked Bar Graph)

29 Days from 2011-03-10 to 2011-04-08



Maximum: 270,144,352 , Minimum: 0.00 , Average: 48,478,762 , Current: 29,464,472

Main Feedbacks from Communities

- There is much room to improve the coordination and the production itself.
 - From Data Preparation
 - Reduction of CPU consumption against ATLAS reprocessing and MC production is necessary.
 - From Physics Coordination (triggered by Exotics WG recently)
 - <https://indico.cern.ch/getFile.py/access?contribId=2&resId=1&materialId=slides&confId=131198>
 - Groups are sharing datasets.
 - Requesting for coordination in terms of software, production request and group space
 - Discussion between Beate/Jamie (DP), Karsten/Amir (PAT) and me.
 - From groups
 - Especially for cleaning of group space
 - Cleaning is becoming urgent for 2011 data taking

Towards the Improvements

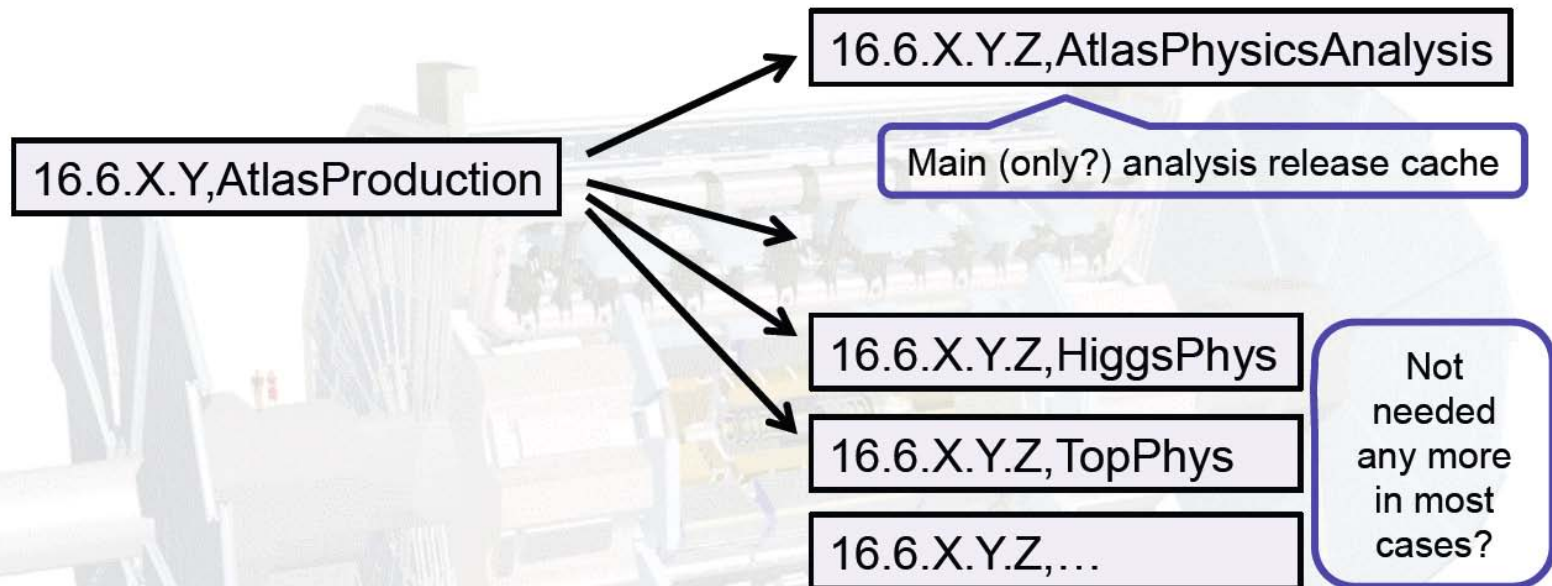
- Coordination
 - Include a DPD software expert in the coordination
Attila already started the coordination of D3PDMaker packages very nicely.
 - Include a reconstruction software expert (e.g. AODFix etc) in the coordination
 - Strong support for PATJobTransforms package
This is a big missing part.

Towards the Improvements

- Software
 - Arrange a common AtlasPhysicsAnalysis cache, which can accommodate the existing various analysis caches (TopPhys, JetMetAnalysis, HiggsAnalysis, BTagging).
 - See the next slide by Karsten
 - Regular cycle of creating the cache.
 - Deal with urgent fixes, too.
 - Details (cycle, tag sweeping etc) to be defined.



Cache for DPD Production – Idea 1



- Have all relevant code in one release
- Consistency amongst different analyzes and groups
- Easy to maintain

Towards the Improvements

- Production
 - Tasks are defined for each group independently.
 - Various analysis caches
 - A large overlap of input datasets
 - Using the common cache and common input dataset, define a task for multiple groups as much as possible,
 - e.g. AOD→NTUPs for SM WZ, SM direct photon, egamma, SUSY
 - Move a simple Reco_trf.py configuration.
Reco_trf.py inputAODFile=ADO.pool.root
outputNTUP_XXX=NTUP.root autoconfiguration=everything.
 - Mapping between gr_XXX, output types and destinations to be implemented
 - Task submission with a “train” type for multiple groups as much as possible.
 - Tag pXXX evolves as Tier0 f-tag, depending on pcache/configuration updates, new groups joined etc.

Towards the Improvements

- Group space
 - Mostly at Tier2s and Accommodate group production datasets, central MC datasets and others (non-central datasets).
 - A proposal to use a global quota on Tier1s (not now).
 - Survey over groups was recently done.
 - More details from Ueda.
<https://indico.cern.ch/getFile.py/access?contribId=37&sessionId=7&resId=0&materialId=slides&confId=119169>
 - In general, many groups prefer to the idea of the global quota
 - Until then, we live with the present scheme (group space at Tier2s)
 - Expect more space becomes available for 2011 soon.

Group Space

http://bourricot.cern.ch/dq2/accounting/group_reports2/

Group	Used [TB]	Booked [TB]
PERF-EGAMMA	138.48	285.9
PERF-FLAVTAG	102.05	126.46
PERF-JETS	168.51	406.85
PERF-MUONS	179.45	296.89
PHYS-BEAUTY	63.16	219.91
PHYS-EXOTICS	39.12	203.43
PHYS-HIGGS	75.99	219.93
PHYS-SM	413.01	588.28
PHYS-SUSY	254.62	351.87
PHYS-TOP	452.53	692.75
TRIG-DAQ	108.31	197.93

Need cleaning for the coming data

Towards the Improvements

- Replication of datasets
 - Automatic by DaTRI to destinations (group space) defined in task definition.
 - After the replication is done, datasets on Tier1s are deleted.
 - Decision at CREM yesterday that :
 - The centrally produced group datasets will be replicated to DATADISK according to the usage by PD2P.
 - The source for PD2P could be datasets on Tier1s (instead of the deletion now). To be determined.
 - This action will help groups very much, in terms of space usage and most importantly our colleagues who produce the physics results.