

The Latest news ... and Future of ATLAS Databases

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ATLAS Software & Computing Workshop

CERN

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Outline



A **crystal ball** is a crystal or glass ball said to aid clairvoyance ...
into past or future ...

You can try the crystal ball ...
but the

DB session contained some nice
summaries of recent progress
and

many predictions for the **FUTURE**
(a checklist for next SW week?).

- DB Session Highlights
- Future prospects/checklist
- Summary

DB Session Summary

METADATA

- AMI progress → Solveig Albrand
- TAG related services → Jack Cranshaw
- TAG and ELSSI progress → Elisabeth Vinek
- Conditions Metadata and RunBrowser → Elizabeth Gallas
- ATLAS meta-data workshop highlights → Alexei Klimentov

GEOMETRY

- Progress on the Geometry DB → Vakhtang Tsulaia

CONDITIONS

- Conditions Tag Coordination → Mathieu Plamondon
- New features in COOL tag browser → Lasha Sharmazanashvili
- Conditions DB access from Python tools → Mikhail Borodin

INFRASTRUCTURE

- Database developments and optimizations → Gancho Dimitrov
- COOL and Persistency update → Andrea Valassi
- Frontier Usage/Testing/Monitoring → Rodney Walker

METADATA

- TAG and ELSSI progress → Elisabeth Vinek
- TAG related services → Jack Cranshaw
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- AMI progress → Solveig Albrand

TAG DB distributed architecture in place

- many advantages for ELSSI and TAG Services
- Implementation of “Service Catalog” underway
 - statistics gathering: assess usage, optimize distribution

TAG Services: Lookup, Extract, Skim, Interfaces

- Improved: exchange formats, releases, testing
- See also distributed analysis sessions

AMI and Conditions Metadata

- New interfaces with connections to existing interfaces
- Investigations into event and LB losses

Summary of the Metadata workshop presented

GEOMETRY

- Progress on the Geometry DB → Vakho Tsulaia

In progress: Reducing number of queries to the Geometry DB (coming from obtaining the Global to Child Tag mapping)

- Schema enhancements
- Producing best methods for populating new structures
- Extend functionality of RDBAccessSvc
 - W/failover mechanisms for transparent transition to new system
- Good example of system evolution
 - Making a reliable system better
 - which opens up new possibilities !

Longer term ? Make Geometry DB available in FroNTier

- Becomes default access method for user jobs
- Keep MC DB Release for MC on grid, travelling laptop mode
- Drop dependency of distributions kits on DB Releases
 - Must clarify if this will also work for Trigger DB
 - Resolve any configuration issues

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Building on experience in COOL Tag Coordination: Successful reprocessing

- More lessons learned: procedures, communication, value of iterative process for more complex systems
- Areas for potential simplification identified

COOL Tag browser extremely useful - Next version even more powerful

- Helping to manage a complex system

Efforts in tag clean-up, archiving – reduce confusion

Improvements underway in python tools for Conditions management

DB Release related tools

- IOV Completeness tool – cross checks at earlier stage

Changes in COOL logical connections (and AtlasSetup)

Efforts in reducing MC DB Release size

- Backward compatibility implications

Oracle access in reprocessing – being addressed

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PANDA database issues

- Urgent problems with PANDA archive
- High rate polling queries: moderated using caching

PVSS lifecycle: keep last 12 months online

DQ2: issues in indexing and partitioning

Persistency developments: POOL, CORAL, COOL

- Improvements expected for Release 17
- Putting ORA-07445 behind us (July incident)
 - Improved patch testing as a result

Frontier:

- Current deployment: Working robustly, handling increase use cases
 - Fine tuning deployment ... insuring sites properly configured
- Monitoring in place, being refined
- Manpower needed to investigate occasional glitches

Predictions (and Caveats) - 1

- TAG DB improved infrastructure, new usage Monitoring
 - Will help to optimize usage and deployment
 - Caveat: Usage depends on integrity of TAG production
 - Failed in “Autumn reprocessing”, special reprocessing planned
 - Known gap in manpower for content support/validation
- Conditions and Processing Metadata
 - Improved interfaces and connections
 - Caveat: Changes in architecture should make use of experience / infrastructure existing / coming in place
- Geometry DB access: Refining a well oiled machine
 - May allow this system to exploit grid access
 - Caveat: details, testing, wide deployment considerations

Predictions (and Caveats) - 2

- Conditions management – a complex game
 - Continuous improvements in tools, procedures, docs
 - Caveat: training with manpower turnover critical, we cannot be complacent
- Frontier usage will grow and use cases will grow
 - Deployment model: robust, avoid single-pt-failure
 - Caveat: must handle peak periods (conferences), increased volume of data processed as luminosity grows
- Database volumes will grow
 - Challenge: keep DB applications tuned / performant.
 - Caveat: Schema changes may be required even on 'production systems', more difficult when unwieldy

- Much progress in many systems
 - Global implications in many areas of the experiment
- Many topics/discussions, too much to cover in 3 hours !
 - Not enough time to include much additional work
 - Not just this S&C week but consistently over last 2 years
 - DB Sessions in Future S&C Weeks need more time !
- Thanks to many experts involved !