Conditions DB access from Python tools

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Outlines

- Python tools
  - List of tools
  - New tool: AtlCoolIOVRunCheck.py
  - New default logical connections
  - Expert tasks

- Obsolete tags
- Reduce MC DBRelease size
- Condition DBRelease news
  - Statistics
  - COOL access during reprocessing

Python tools

- AtlCoolCopy.exe
  - https://twiki.cern.ch/twiki/bin/viewauth/Atlas/AtlCoolCopy
- AtlCoolMerge, AtlCoolTransfer
  - https://twiki.cern.ch/twiki/bin/viewauth/Atlas/CoolPublishing
- AtlCoolConsole:
  - https://twiki.cern.ch/twiki/bin/viewauth/Atlas/AtlCoolConsole
- AtlCoolTag:
  - https://twiki.cern.ch/twiki/bin/viewauth/Atlas/CoolTagging
- CondDSMgr
  - https://twiki.cern.ch/twiki/bin/viewauth/Atlas/CondDSMgr
- Nightly Tasks
  - https://twiki.cern.ch/twiki/bin/viewauth/Atlas/CoolNightlyTasks

New AtlCoolIOVRunCheck.py tool

- Object: quick check IOV completeness for all folders for all run list before reprocessing Head tags closed.

- Input
  - Run list
  - Folder
  - Head or particular tags
- Output
  - List of run and folder that haven't data for input tags.
- Note
  - Script doesn't check that data correct. Only that some data exist.

New AtlCoolIOVRunCheck.py tool (Cont.)

- Will be ready for users very soon.
- Tool was successfully tested for the COMCOND-REPP*-007-07 HeadTags for autumn reprocessing

- Example of using:

/afs/cern.ch/user/a/atlcond/utils/AtlCoolIOVRunCheck.py –r ./runlist.txt –f /TRT/Calib/RT –ht COMCOND-REPP-007-07

- Example output:

RUN 165591:

   schema: ATLAS_COOLOFL_TRT

   Error No data found:

     folder : /TRT/Calib/RT tag : TrtCalibRt-Physics-REP-FieldOff-04-00

New default logical connections

- If you use for connection <logical_name>/<instance> ("COOLONL_TRT/COMP200"), the correspondence of this physical servers and schema will reads from a file dblookup.xml pointed to by the path variable CORAL_DBLOOKUP_PATH.

- Using asetup like `asetup 16.0.2.5` is setup environment to 'releases' area, where dblookup.xml are taken from DBRelease (it has SQLIte connection by default)

  - For access to Oracle/Frontier you need to use ';readoracle': "COOLONL_TRT/COMP200;readoracle"

- Starting from tag CoolConvUtilities-00-05-00 connection to "<logical_name>/<instance> " will skip SQLIte by default

  - "COOLONL_TRT/COMP200" will connected to Oracle/Frontier

- Direct link should used for connection to SQLite:

  - "sqlite://;schema=mysqlitefile.db;dbname=COMP200"

Expert task

- Expert tasks:

  - Creating a new folder in COOL DB
  - Modifying a folder description
  - Adding a payload column to a folder
  - Renaming a payload column
  - Renaming a folder
  - Deleting channels
  - Cloning and creating BFieldMap tag

- For all question about expert task, send e-mail to me, Richard and Mathieu.

Obsolete tags

- There are now 172 Head tags for the real data and 188 Head tags for the MC data
  - Difficult to manage
  - Some tags are never used
  - Some tags are corresponding to obsolete software release

- (Proposed by Paul), Obsolete Head tags should be marked and do not show by COOL tools:
  - AtlCoolConsole.py
  - AtlCoolTag.py (backtrace)
  - COOL tag browser
  - ….

- Works in progress

Reduce MC DBRelease size

- Continued growth in size and quantity of DBRelease can lead to problems in the future

- Several steps were proposed (Vakho, Richard):
  - Exclude obsolete Head tags from DBRelease
  - Exclude pool condition files which are not connected to any instance in OFLP200
  - Exclude all tags which are not corresponded to any Global Tags
    - For folders with tags that are necessary, but are not corresponded to any Global tags, string "<fullrep/>" should be added to the folder description. In this case folder will be fully replicated.

- Replication scripts almost ready for new approach

- It will break backward compatibility

DB Release for reprocessing and HI

- Autumn reprocessing statistics:
  - Two sets of DB Release pairs were used: first-pass & main-pass
  - 149 runs (124 in phase I + 25 in phase II), 171 Folders
  - Dataset size: 57 GB in phase I + 13 GB in phase II
- Comparing with previous reprocessing, the build time increased for long runs, but it is fast enough
  - The build time is proportional to the duration of the run
- Reprocessing experience identified further improvements for DB Release packaging procedures to assure fault tolerance to intermittent site-specific problems
- Db-on-demand service was extended for supporting DB Releases build for bulk processing of HI runs at Tier-1s
- DB Release assures robust Conditions DB access on the Grid
  - Further Conditions DB Release improvements are in progress

Oracle access in reprocessing

- During Autumn reprocessing several problems were observed during direct Oracle access
- To eliminate direct Oracle access form Athena python code we decided to read all Conditions DB data from SQLite only
  - All connections from python code and IOVDBSvc will use SQLite from the Condition DB Release
  - The solution was implemented to CoolConvUtilities (CoolConvUtilities-00-05-00) and to db-on-demnd service
- New database access code was successfully tested
- Athena DB connections circumventing IOVDBSvc are still the problem
  - It is not yet clear how to create SQLite replicas for them

Conclusion

- For work with ATLAS Condition DB we have several very robust utilities.

- Creating new tools for new use cases , improvement of usability and efficient existing one is ongoing.