Status Report on Automatic QA

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Thanks to

- Dario Berzano,
- Stefan Heckel, Theo Broeker, Patrick Reichelt, Marco Marquard, Peter Malzacher, Jan Wagner, Mikolaj Krzewicki, Marian Ivanov for automatic trending/scripts and running at GSI

Detector QA Overview

For Run I

- Step 1: the detector QA is run centrally on the Grid during the reconstruction / production

  - The QA train contains wagons from each detector + PWGPP wagons (tracking, PID, Physics Selection, …)
  - The output is a single (merged) file per run, “QAresults.root”
  - QAresults.root is stored for each run in AliEn together with the reconstruction or production output

- Step 2: QA validation is done by the detector experts + PWGPP-QA

- Up to mid-2014 the validation is done by each detector QA responsible

- Since Mid-2014 Decision to:

  1. Produce uniform entries for trending for all detectors and run centrally the QA analysis and trending. The QA validation not fully automatic (human’s jugement)
  2. Central repository for storing the outputs

Detector QA Overview (II)

- **Automatic of trending and individual runs QA scripts have been produced:**

  Borrowed from the TPC procedure at GSI *(M. Krzewicki , M. Ivanov, A. Tarantola, J. Wagner)*
  Detector implemented macros to produce/analyse QAresults.root
  Available scripts /macros(in aliroot): **TPC, TOF, TRD, T0, EMC, FMD, MU, PHO, ZDC, TRK, V0, ITS**
  Missing detectors: PMD,HMPID

  - **produce trending trees with relevant variables + plots**

- **Automatic trending currently fully operational at GSI**

  cron jobs running at the GSI with most of the available detectors
  output synchronized to CERN AFS central repository by QA moderator

- **Automatic QA trending running on 2010/2012 reprocessed data at GSI**
  with most of available detectors

QA Repository

Twiki: https://twiki.cern.ch/twiki/bin/viewauth/ALICE/CentralQaRepository
Presentation at the Offline Meeting 21/07/2014:
https://indico.cern.ch/event/291324/contribution/1/material/slides/3.pdf

Central CERN Web based QA repository for output of trending of QA variables and all QA plots
AFS web site: http://aliqa<det>.web.cern.ch/aliqa<det>

- Service account created for all <detectors> can be also a group (Tracking, Event Selection, ….)
- QA moderator (aliqamod has read/write permission on all detector repository.)
- Repository structure: (same conventions as Alien)

$PATH= http://cern.ch/aliqa<DET>/$datatype/$year/$period/$recopass/$suffix

$suffix can be one or more of the following

ProductionQA:
- post processing of QA train output , trending variables,
- Control by detector QA + reports to PWG-PP-QA meeting

ExpertQA
CalibrationQA

Automatic QA for run II

Step 1: the detector QA is run centrally on the Grid during the reconstruction / production …

QA output will be the same as run I

Step 2: QA Validation will be done by the detector experts + PWGPP-QA

Dedicated QA node at CERN to host caching of the QA output and automatic trending procedure

- F. Bellini: Offline Meeting 19/11/2014
  https://indico.cern.ch/event/351206/session/1/contribution/34/material/slides/1.pdf

Automatic QA Node @ CERN (I)

Based on VMs on the CERN Agile Infrastructure (Cloud)

With the help of Dario B.

- **Shared Cloud Service Project "ALICE Quality Assurance" created**
- **Configuration :**
  - E-group of project members: alice-pwg-pp-qa-admin
  - Owner, ie primary account name of the person owning the project: fbellini
  - CERN SLC6
  - Virtual Machine Quota:
    - Nb of VM: 4
    - Nb of cores 16
    - RAM: 256 GB
  - Volume quota:
  - Disk = 1000GB
  - Nb of volumes: 10

➢ Access to AFS for copying QA results to AFS web repository

➢ Alice software environment from CVM-FS

Automatic QA Node @ CERN (II)

Dedicated aliqa1@cern.ch

- Alice software environment from CVM-FS
  analysis tags will be used after systematic tests to get latests detectors updates.

- Access to AFS for copying QA trending results to AFS web repository
  (with aliqamod afs token (5 days max automatically)

- **Account for QA operation:**

  - aliqaoperator @ aliqa1 for operating

1. Grid certificate of aliqamod used to cache the alien /…./QAresults.root
2. Produce trendings
3. Store in afs repositories
4. Update trendings

  - aliqadummy (for testing)

Automatic QA @ CERN VM status

Testing of the full chain on aliqa1

Sync of alien repository:

- ☑ Scripts ready and infrastructure tested

Run the QA automatic trending

- ☑ Tested for some detectors
- ☒ Still work on it to include /test full detectors list

Copy to AFS

- ☑ Manually tested
- ☒ Test in full general script to be done;

Cron jobs for running

- ☒ Still missing (to be borrowed from GSI)

Conclusions

- During 2014
  - General and automatized tools for run II QA have been developped
    - Central web repository created
    - Definition of a standard trending format for all detectors + phys sel +..
    - Almost all detectors scripts/macro available
  - Shared Cloud Service Project "ALICE Quality Assurance" created based on VM CERN
    - aliqa1.cern.ch created with AFS/alicesoftware/scripts installed;
- Missing
    - Full complete test on CERN VM Nodes (ongoing)
      slowly from last december due to lack of time but expected more efficient from now.
    - Service task for operating
    - https://alice.its.cern.ch/jira/browse/PWGPP-41
    - https://alice.its.cern.ch/jira/browse/ATO-45
- Possible improvements before run II for QA (out of automatization)
    - adding PWG QA to central repository and trending (see Marian' pres)