Detector Algorithms in the DAQ framework

Implementation status

Sylvain.Chapeland@cern.ch - Alice/DAQ

DAQ DA framework

- ## Reference document:

    Detector algorithm packaging for DAQ systems Version 5.1 – 16/10/2007

- ## Associated framework example/library

    Alice-daqDA-framework-1.2.tar.gz – 17/4/2007

    ## http://cern.ch/alice-daq/DA-framework/

- ## Support

    alice-datesupport@cern.ch

Typical DA (DAQ)

Launcher (ECS)

Logs (stdout)

Data source (files or DATE processes)

Persistent files

Local disk

User's code

AMORE

ROOT

DA lib

AliROOT

DATE Monitoring

Shuttle

DAQ Config DB

User's config

DA process

DAQ File Exchange Server

DATE Raw data

Detector data

12/10/2007

DAQ DA status

3
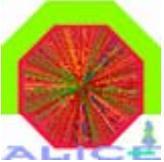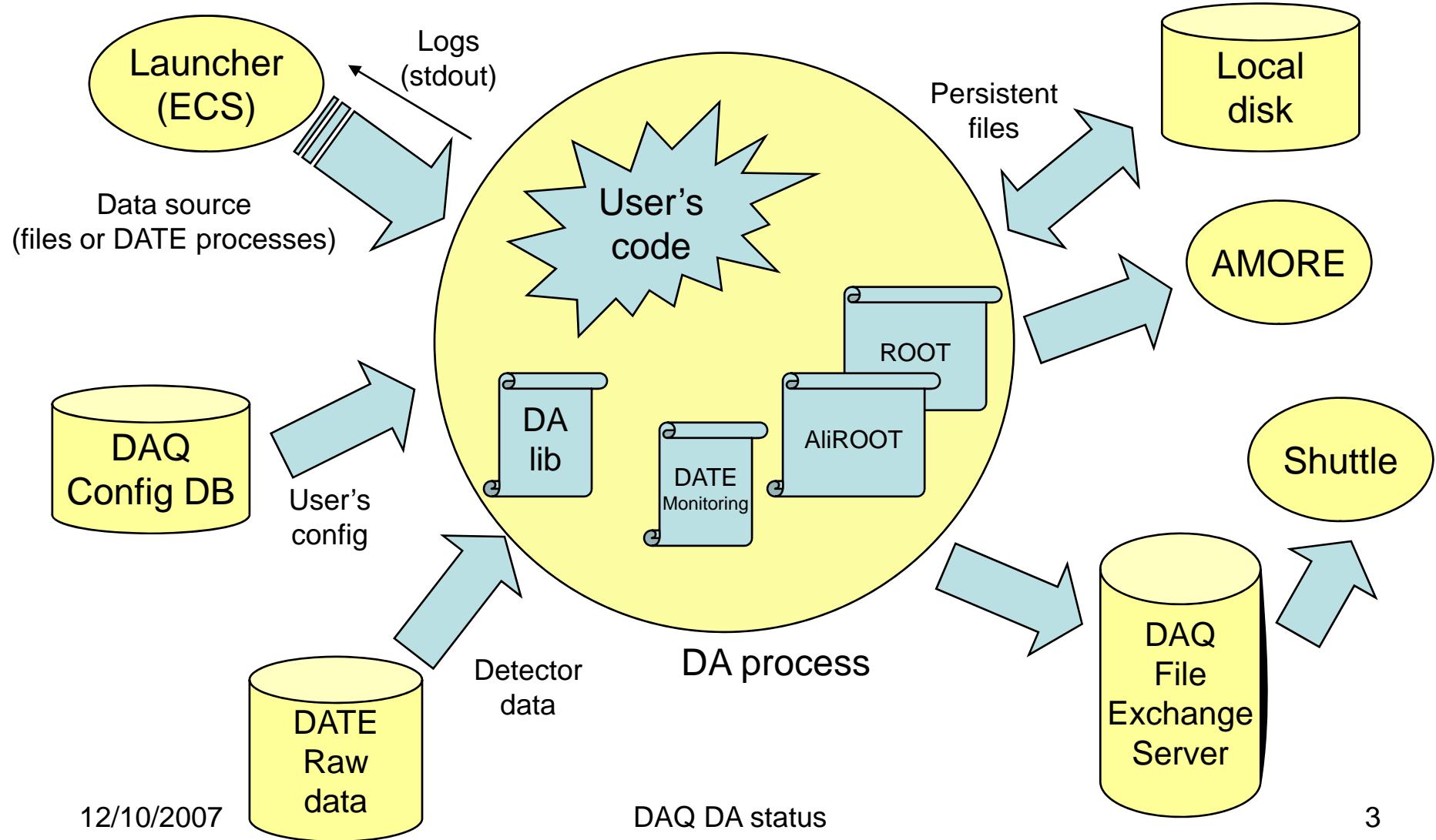
DAQ DA framework

- ## C library :
  - Read config files
  - Access DAQ DB (equipment IDs)
  - Copy files to File Exchange Server
  - Interface functions

- ## Makefile rules

- ## Examples

- ## Howto

Exclusive way to perform
"outside world"
I/O operations

+ new features
as needed
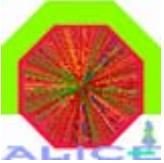
DAQ DA packaging

- **Packaging rules handled in AliROOT**
    - standalone DA library still available
- **DA source code should be committed to AliROOT CVS**
- **DAQ build server creates binary RPMs to be installed**
    - from AliROOT tagged version and appropriate make targets

DA development

1. Define the calibration runs   ⟹ ECS

2. Extensive specification

    data source, trigger type, data size in/out, files in/out, frequency, process footprint, dependencies…

3. Write some processing code

4. Integrate this code to the DA framework

5. Test locally with a RAW data file
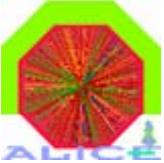
DA validation

1. Users write and test their code on their machine (no DATE setup required)
   call DA manually from the command line
   with a test DATE raw data file as input

2. When completed, provide DA source code (in AliROOT) and test file to DAQ

3. DAQ creates DA binary on build system

4. DAQ validates DA on reference system
   footprint and functionality evaluated with test raw data file

5. Once validated, DA can be deployed and tried on a real system with DATE, ECS and hardware

DAs in production

AliRoot
tag

Write DA
code

DA RPM

DA test

DA installed
DAQ@CR1

DAQ
build
server

DAQ Build server

CVS

Ethernet

Build Server

Dual Xeon 2.8GHz
(typical LDC)

FC

Storage

RAID 5

AliRoot
source

AliRoot
BuildJob
make –j 4

DAs
BuildJob

DAs
Test Job

Dependencies
RPMs
HTML reports

*same Linux as target
machines @ CR1*
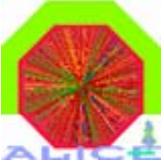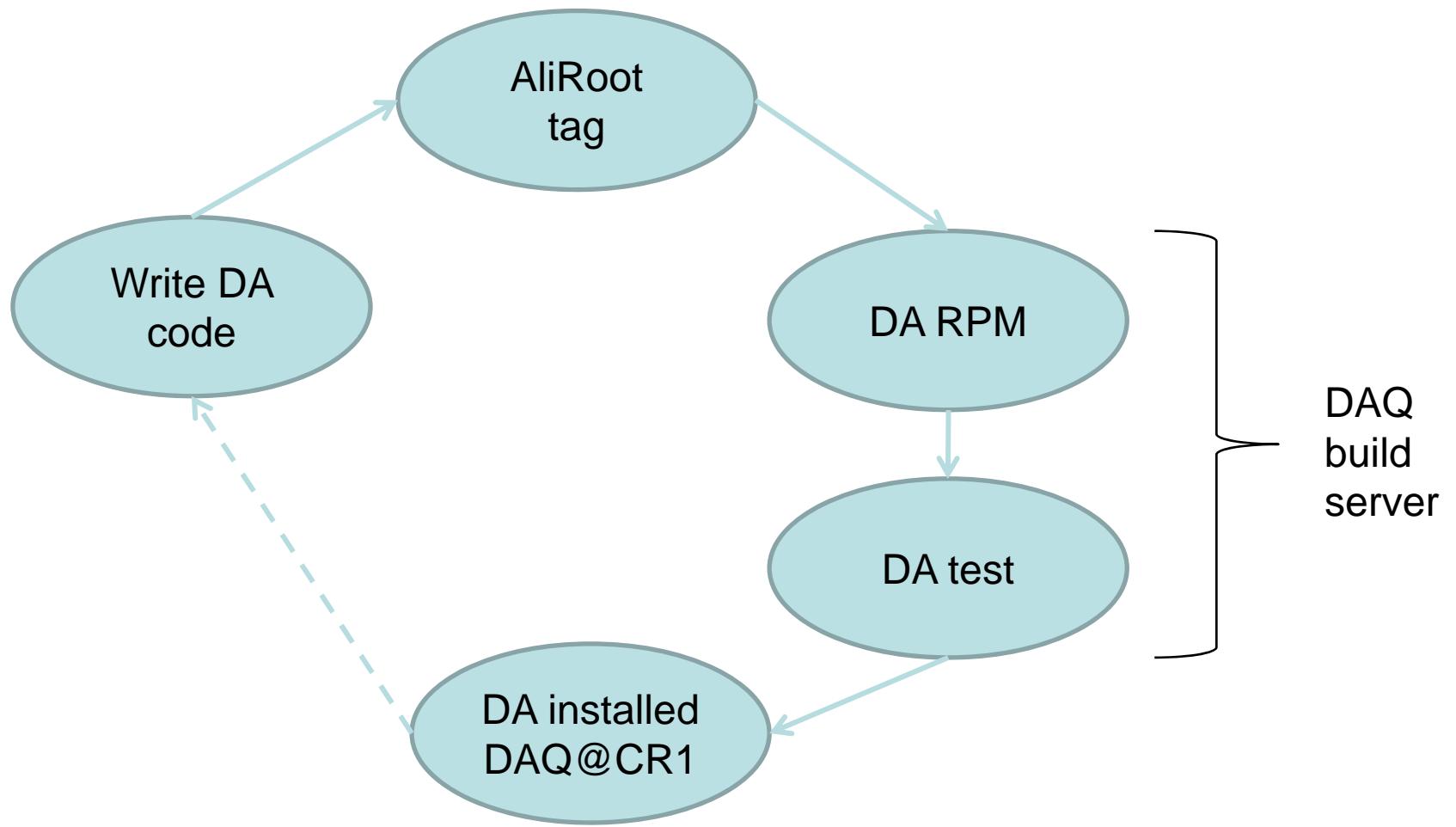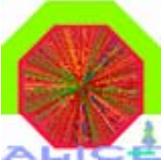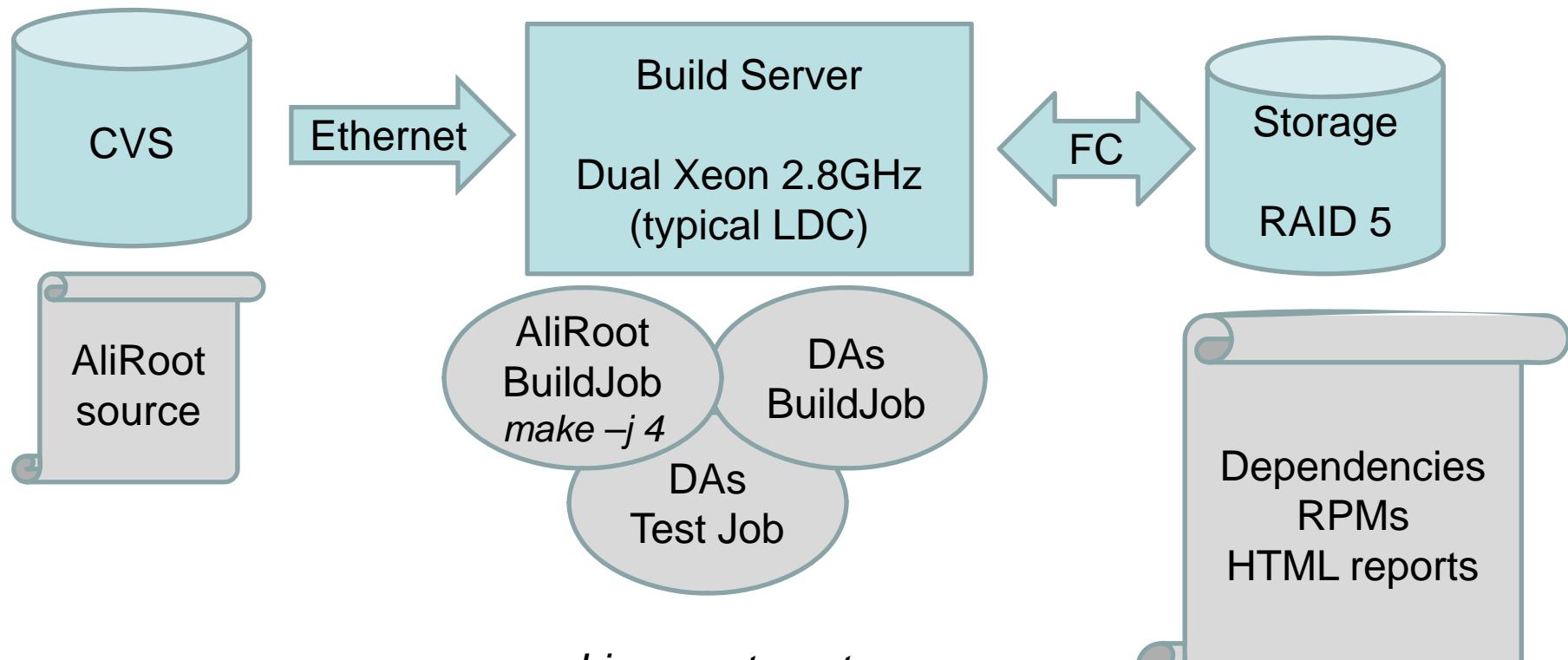
DA implementation – 10/07

	SPD	SSD	SDD	TPC	TRD	TOF	MUONTK	MUONTG	HMPID	PHOSCP	FMD	T0	V0	ZDC	PMD	ACORDE	EMCAL
Calibration runs in ECS (07/07)	green	green	red	green	red	green	green	green	green	red	red	red	red	red	red	red	red
DA RPM produced in AliROOT (11/10/07)	green	orange	orange	green	orange	orange	green	green	green	green	orange	green	red	red	green	red	red
Test file available	green	red	green	green	green	green	red	red	green	green	red	red	red	red	red	red	red
DA validated	green	red	red	orange	red	green	red	red	orange	green	red	red	red	red	red	red	red
DA tested in real setup	green	red	red	red	red	green	red	red	red	orange	red	red	red	red	red	red	red
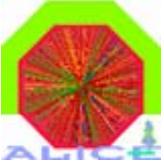
Important points

- **One DA per task/calibration type**

- **No command line options**
  - Parameters to be retrieved from configuration db

- **Use only provided library for interface I/O**

- **Documentation** *(in specfile)*
  - Email for contact
  - DA specifications (run types, number of events, name of the executable...)
  - Link to test files
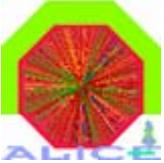
Plans

- DA (re) validation campaign starting next week
    - please update DA self-documentation
- Deployment at P2 or lab setup upon request when DA validated (arising opportunities)
- Development of new features in library if needed
- Next Aliroot tag should have most existing DAs usable