

(C++) ROOT & ALICE Data Analysis (++) More ?!?)

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Outline : Life cycle of EHEP PhD student

- 1 C++ language
- 2 ROOT : HEP analysis tool
- 3 AliRoot : ALICE Analysis Software
- 4 Various

ALICE software installation

- Read the detail installation process at, <https://alice-doc.github.io/alice-analysis-tutorial/building/>
- Start with simpler installation method "Install ALICE software with alibuild".
- However, if you own a laptop you may try the quick start procedure.
- The terminal logs of quick start procedure are uploaded in the indico page.
- The complete build procedure,
 - i took ~ 12 hours, in a typical Indian home network.
 - ii The complete build procedure will ask you few times to apply your CERN credentials.
 - iii The complete build procedure may require ~ 24 GB of disk space.
- Note that this quick start is a standalone procedure. The software discussions with the collaboration colleagues should be based on the information at the link as mentioned above.

ALICE software installation

Install the python and alibuild package as superuser 'root'

```
# yum install python-pip
# pip install --upgrade pip
# pip install alibuild
```

I presume you install ALICE software in \$HOME/alice

```
$ mkdir $HOME/alice
$ cd $HOME/alice
$ export ALIBUILD_WORK_DIR="$HOME/alice/sw"
$ aliBuild init AliRoot,AliPhysics (this will download the git repository)
$ aliDoctor AliPhysics (download the packages required for installations as
mentioned in the output)
$ aliBuild build AliPhysics
$ export ALICE_WORK_DIR="$HOME/alice/sw"
$ alienv q
$ alienv enter AliPhysics/latest
```

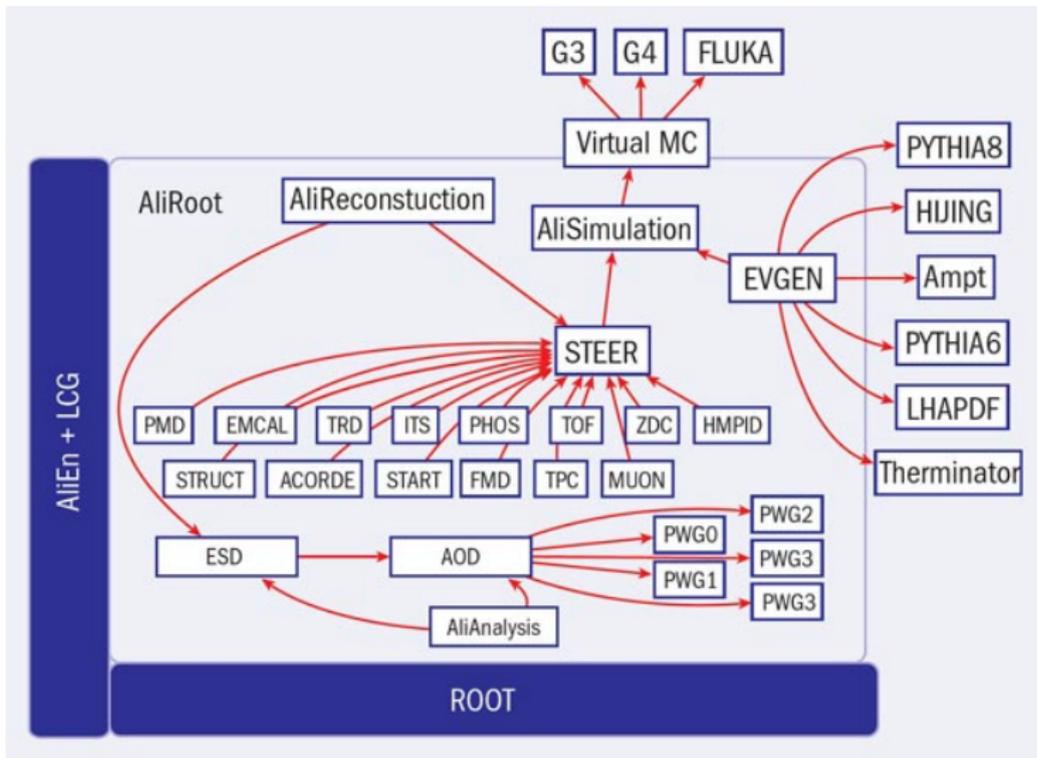
ALICE software installation

If you want to keep another version of AliPhysics and AliRoot, without changing the previous installation,

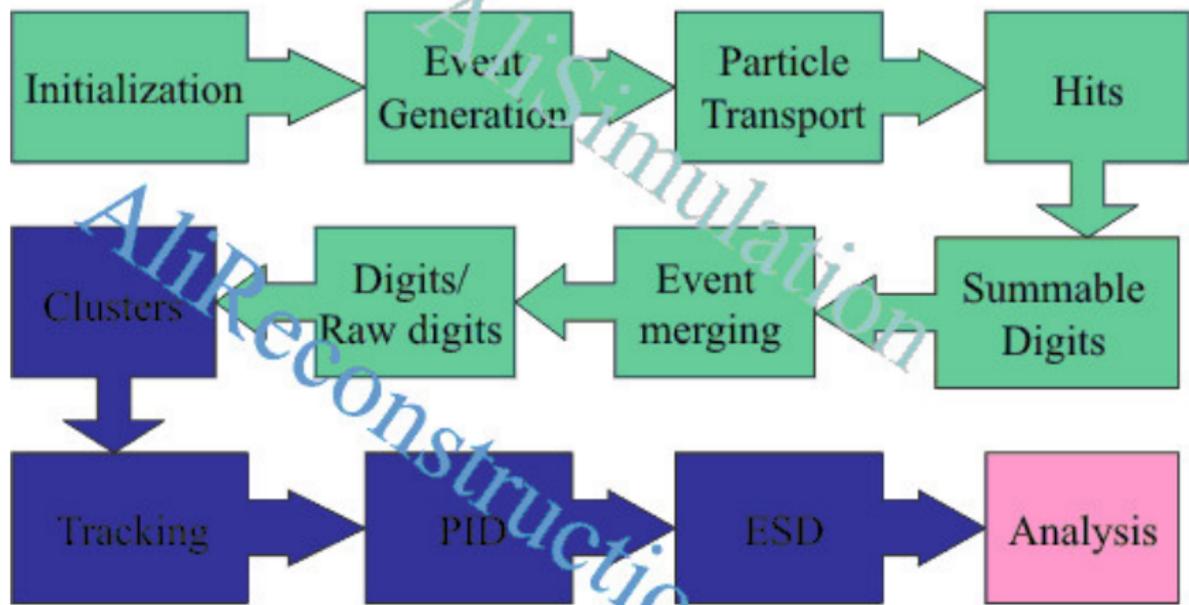
```
$ mkdir $HOME/alice/v5-09-02-01
$ cd $HOME/alice/v5-09-02-01
$ aliBuild init AliRoot,AliPhysics -w ../sw
$ cd AliPhysics ; git checkout v5-09-02-01 ; cd ../
$ cd AliRoot ; git checkout v5-09-02 ; cd ..
$ aliBuild build AliPhysics -w ../sw -z
$ alienv q
$ alienv enter VO_ALICE@AliPhysics::latest-v5-09-02-01-release
```

■ <http://alimonitor.cern.ch/packages/>

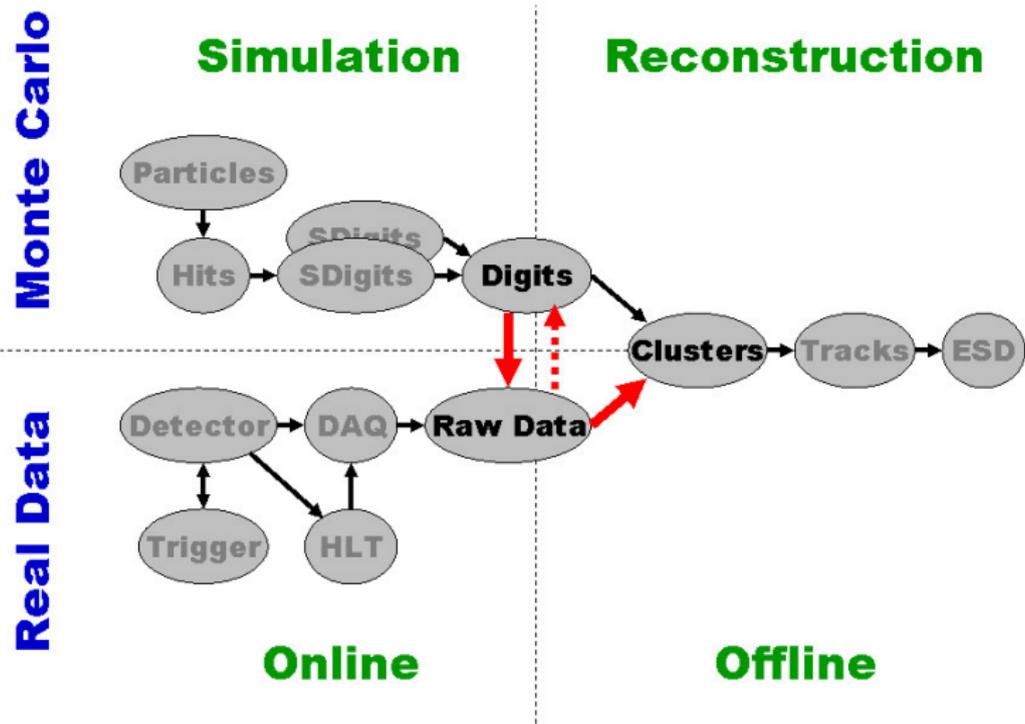
AliRoot Framework Interfaces



Simulation Flow

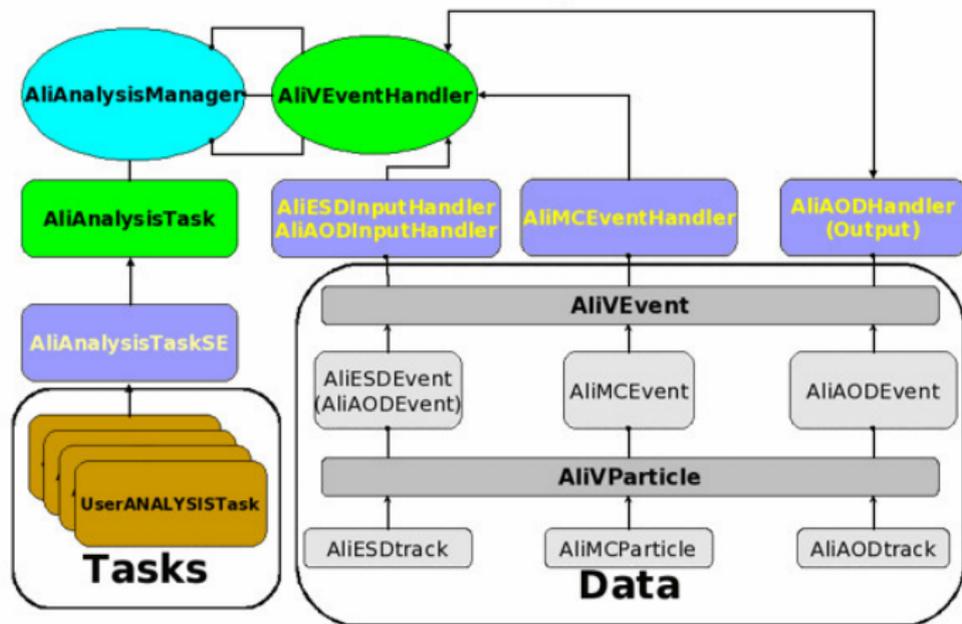


MC vs Data



Analysis Handlers

The overall picture



Analysis Tutorial

The screenshot shows a web browser displaying the Indico event page for "Analysis Tutorial November 11". The URL is <https://indico.cern.ch/event/586577/>. The event is scheduled for Friday, 11 Nov 2016, from 09:00 to 15:00 in Europe/Zurich at room 160-R-009 (CERN). The description states that the video recording of the tutorial can be found here. Under the "Videoconference Rooms" section, a dropdown menu shows "Analysis_Tutorial_November_11" with a "Join" button. The event schedule includes:

- 09:00 → 10:00** **Getting started with writing an analysis task** (1h)
Speaker: Redmer Alexander Bertens (Nikhef/National Institute for subatomic physics (NL))
Files: [example.tar](#), [rbertens_analysis_L...](#)
- 10:00 → 10:30** **aliBuild** (30m)
A quick tutorial to get started with ROOT and AliPhysics on your system
Speakers: Dario Berzano (CERN), Giulio Eulisse (CERN)
Files: [Complete tutorial](#), [Simplified tutorial](#)

■ <https://indico.cern.ch/event/586577/>

■ Or Open <http://alice-collaboration.web.cern.ch/> → Analysis → Tutorial

■ Download the `example.tar`

File Edit Options Buffers Tools C Help

```

/* Copyright(c) 1998-1999, ALICE Experiment at CERN, All rights reserved. */
/* See cxx source for full Copyright notice */
/* $Id$ */

#ifndef AliAnalysisTaskMyTask_H
#define AliAnalysisTaskMyTask_H

#include "AliAnalysisTaskSE.h"

class AliAnalysisTaskMyTask : public AliAnalysisTaskSE
{
public:
    AliAnalysisTaskMyTask();
    AliAnalysisTaskMyTask(const char *name);
    virtual ~AliAnalysisTaskMyTask();

    virtual void UserCreateOutputObjects();
    virtual void UserExec(Option_t* option);
    virtual void Terminate(Option_t* option);

private:
    AliAODEvent* fAOD;          //!< input event
    TList* fOutputList;        //!< output list
    TH1F* fHistPt;             //!< dummy histogram

    AliAnalysisTaskMyTask(const AliAnalysisTaskMyTask&); // not implemented
    AliAnalysisTaskMyTask& operator=(const AliAnalysisTaskMyTask&); // not implemented

    ClassDef(AliAnalysisTaskMyTask, 1);
};

#endif

```

```

-:--- AliAnalysisTaskMyTask.h All L1 (C/l Abbrev)
Quit

```

```

#include "TChain.h"
#include "TH1F.h"
#include "TList.h"
#include "AliAnalysisTask.h"
#include "AliAnalysisManager.h"
#include "AliAODEvent.h"
#include "AliAODInputHandler.h"
#include "AliAnalysisTaskMyTask.h"

class AliAnalysisTaskMyTask;    // your analysis class

using namespace std;           // std namespace: so you can do things like 'cout'

ClassImp(AliAnalysisTaskMyTask) // classimp: necessary for root

AliAnalysisTaskMyTask::AliAnalysisTaskMyTask() : AliAnalysisTaskSE(),
    fAOD(0), fOutputList(0), fHistPt(0)
{
}
//
AliAnalysisTaskMyTask::AliAnalysisTaskMyTask(const char* name) : AliAnalysisTaskSE(name),
    fAOD(0), fOutputList(0), fHistPt(0)
{
    // constructor
    DefineInput(0, TChain::Class());
    DefineOutput(1, TList::Class());
}
//
-:--- AliAnalysisTaskMyTask.cxx 37% L21 (C++/l Abbrev)

```

```
//  
AliAnalysisTaskMyTask::AliAnalysisTaskMyTask(const char* name) : AliAnalysisTaskSE(name),  
    fAOD(0), fOutputList(0), fHistPt(0)  
{  
    // constructor  
    DefineInput(0, TChain::Class());  
    DefineOutput(1, TList::Class());  
}  
//  
AliAnalysisTaskMyTask::~AliAnalysisTaskMyTask()  
{  
    // destructor  
    if(fOutputList) {  
        delete fOutputList;  
    }  
}  
//  
void AliAnalysisTaskMyTask::UserCreateOutputObjects()  
{  
    fOutputList = new TList();  
    fOutputList->SetOwner(kTRUE);  
    fHistPt = new TH1F("fHistPt", "fHistPt", 100, 0, 10);  
    fOutputList->Add(fHistPt);  
  
    PostData(1, fOutputList);  
}  
//  
void AliAnalysisTaskMyTask::UserExec(Option_t *)  
{  
-:-- AliAnalysisTaskMyTask.cxx 53% L41 (C++/l Abbrev)
```

```

}
//
void AliAnalysisTaskMyTask::UserCreateOutputObjects()
{
    fOutputList = new TList();
    fOutputList->SetOwner(kTRUE);
    fHistPt = new TH1F("fHistPt", "fHistPt", 100, 0, 10);
    fOutputList->Add(fHistPt);

    PostData(1, fOutputList);
}
//
void AliAnalysisTaskMyTask::UserExec(Option_t *)
{
    fAOD = dynamic_cast<AliAODEvent*>(InputEvent());
    if(!fAOD) return;
    Int_t iTracks(fAOD->GetNumberOfTracks());
    for(Int_t i(0); i < iTracks; i++) {
        AliAODTrack* track = static_cast<AliAODTrack*>(fAOD->GetTrack(i));
        if(!track) continue;
        fHistPt->Fill(track->Pt());
    }
}
//
void AliAnalysisTaskMyTask::Terminate(Option_t *)
{
    // terminate
}
//
-:--- AliAnalysisTaskMyTask.cxx  Bot L61  (C++/l Abbrev)

```

File Edit Options Buffers Tools C++ Help

```
class AliAnalysisDataContainer;

AliAnalysisTaskMyTask* AddMyTask(TString name = "name")
{
    AliAnalysisManager *mgr = AliAnalysisManager::GetAnalysisManager();
    if (!mgr) {
        return 0x0;
    }
    if (!mgr->GetInputEventHandler()) {
        return 0x0;
    }

    TString fileName = AliAnalysisManager::GetCommonFileName();
    fileName += ":MyTask"; // create a subfolder in the file

    AliAnalysisTaskMyTask* task = new AliAnalysisTaskMyTask(name.Data());
    if(!task) return 0x0;

    mgr->AddTask(task);
    mgr->ConnectInput(task,0,mgr->GetCommonInputContainer());
    mgr->ConnectOutput(task,1,mgr->
        CreateContainer(
            "MyOutputContainer", TList::Class(),
            AliAnalysisManager::kOutputContainer,
            fileName.Data()));

    return task;
}
```

-:--- AddMyTask.C All L1 (C++/l Abbrev)

(No changes need to be saved)

File Edit Options Buffers Tools C++ Help

```

void runAnalysis()
{
    Bool_t local = kTRUE;
    Bool_t gridTest = kTRUE;

    gROOT->ProcessLine(".include $ROOTSYS/include");
    gROOT->ProcessLine(".include $ALICE_ROOT/include");

    AliAnalysisManager *mgr = new AliAnalysisManager("AnalysisTaskExample");
    AliAODInputHandler *aodH = new AliAODInputHandler();
    mgr->SetInputEventHandler(aodH);

    gROOT->LoadMacro("AliAnalysisTaskMyTask.cxx++g");
    gROOT->LoadMacro("AddMyTask.C");
    AliAnalysisTaskMyTask *task = AddMyTask();

    if(!mgr->InitAnalysis()) return;
    mgr->SetDebugLevel(2);
    mgr->PrintStatus();
    mgr->SetUseProgressBar(1, 25);

    if(local) {
        TChain* chain = new TChain("aodTree");
        chain->Add("/scratch/ALICE_DATA/data/2011/LHC11h_2/000167813/ESDs/pass2/AOD115/0002
/AliaOD.root");
        mgr->StartAnalysis("local", chain);
    } else {
        // if we want to run on grid, we create and configure the plugin
        AliAnalysisAlien *alienHandler = new AliAnalysisAlien();
    }
}

```

--- runAnalysis.C Top L23 (C++/l Abbrev)

(No changes need to be saved)

```

    } else {
        AliAnalysisAlien *alienHandler = new AliAnalysisAlien();
        alienHandler->AddIncludePath("-I. -I$ROOTSYS/include -I$ALICE_ROOT -I$ALICE_ROOT/inc
#include -I$ALICE_PHYSICS/include");
        alienHandler->SetAdditionalLibs("AliAnalysisTaskMyTask.cxx AliAnalysisTaskMyTask.h")
;
        alienHandler->SetAnalysisSource("AliAnalysisTaskMyTask.cxx");
        // select the aliphysics version. all other packages are LOADED AUTOMATICALLY!
        alienHandler->SetALIPhysicsVersion("vAN-20160330-2");
        alienHandler->SetAPIVersion("V1.1x");

        alienHandler->SetGridWorkingDir("myWorkingDir");
        alienHandler->SetGridOutputDir("myOutputDir");
        alienHandler->SetGridDataDir("/alice/data/2011/LHC11h_2");
        alienHandler->SetDataPattern("**ESDs/pass2/AOD145/*AOD.root");
        // MC has no prefix, data has prefix 000
        alienHandler->SetRunPrefix("000");
        alienHandler->AddRunNumber(167813);
        alienHandler->SetSplitMaxInputFileNumber(40);
        alienHandler->SetExecutable("myTask.sh");
        alienHandler->SetTTL(10000);
        alienHandler->SetJDLName("myTask.jdl");

        alienHandler->SetOutputToRunNo(kTRUE);
        alienHandler->SetKeepLogs(kTRUE);
        // merging: run with kTRUE to merge on grid after re-running the jobs in SetRunMode(
"terminate")
        // (see below) mode, set SetMergeViaJDL(kFALSE) to collect final results
        alienHandler->SetMaxMergeStages(1);
        alienHandler->SetMergeViaJDL(kTRUE);

        mgr->SetGridHandler(alienHandler);

        if(gridTest) {

```

```
    if(gridTest) {
        alienHandler->SetNtestFiles(1);
        alienHandler->SetRunMode("test");
        mgr->StartAnalysis("grid");
    } else {
        alienHandler->SetRunMode("full");
        mgr->StartAnalysis("grid");
    }
}
```

--- runAnalysis.C Bot L55 (C++/l Abbrev)
(No changes need to be saved)

Job submission

You require to have valid GRID certificate and AliEn GRID registration for job submission in GRID. Once all are ready you can submit job from your local machine using the following steps.

```
$ alienv enter VO_ALICE@AliPhysics::latest-v5-09-02-01-release
[AliPhysics/latest-v5-09-02-01-release] /home/indra/alice $> alien-token-init idas
[AliPhysics/latest-v5-09-02-01-release] /home/indra/alice $> source /tmp/gclient_env_1000
[AliPhysics/latest-v5-09-02-01-release] /home/indra/alice $> aliroot runAnalysis.C
```

You are advised check your code with correct AliPhysics version locally before submission. First use with test mode before the final job submission.

Monitor the progress of your job at <http://alimonitor.cern.ch>

Applications Places System | en | 34 °C | Fri Aug 4, 13:58

Grid sites monitoring map - ALICE Grid Monitoring with MonALISA - Mozilla Firefox

allmonitor.cern.ch/map.jsp | google drive

MonALISA Repository for ALICE

My jobs | My home dir | Catalogue browser | LEGO Trains | Administration Section | ALICE Reports | Alert 2ML Feed | Firefox Toolbar | MonALISA GUI

ALICE Repository

- ALICE Repository
 - Google Map
 - Shifter's dashboard
 - Run Condition Table
 - Production Overview
 - Production info
 - Job Information
 - SE Information
 - Services
 - Network Traffic
 - FTD Transfers
 - CAF Monitoring
 - SHUTTLE
 - Build system
 - HepSpec
 - Dynamic charts

close all

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Active jobs trend

Active jobs trend

Map Satellite

Google

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● Running jobs
 ● Running jobs but no ML info
 ● Site service problem(s) prevents job execution
 ● No jobs match the site resources
 ● ML service down & no running jobs

Map options

Grid sites monitoring ... | [Chat - Philippe Pillot] | VidyoDesktop™ - In... | indra@idsinp70--

Check the submitted jobs

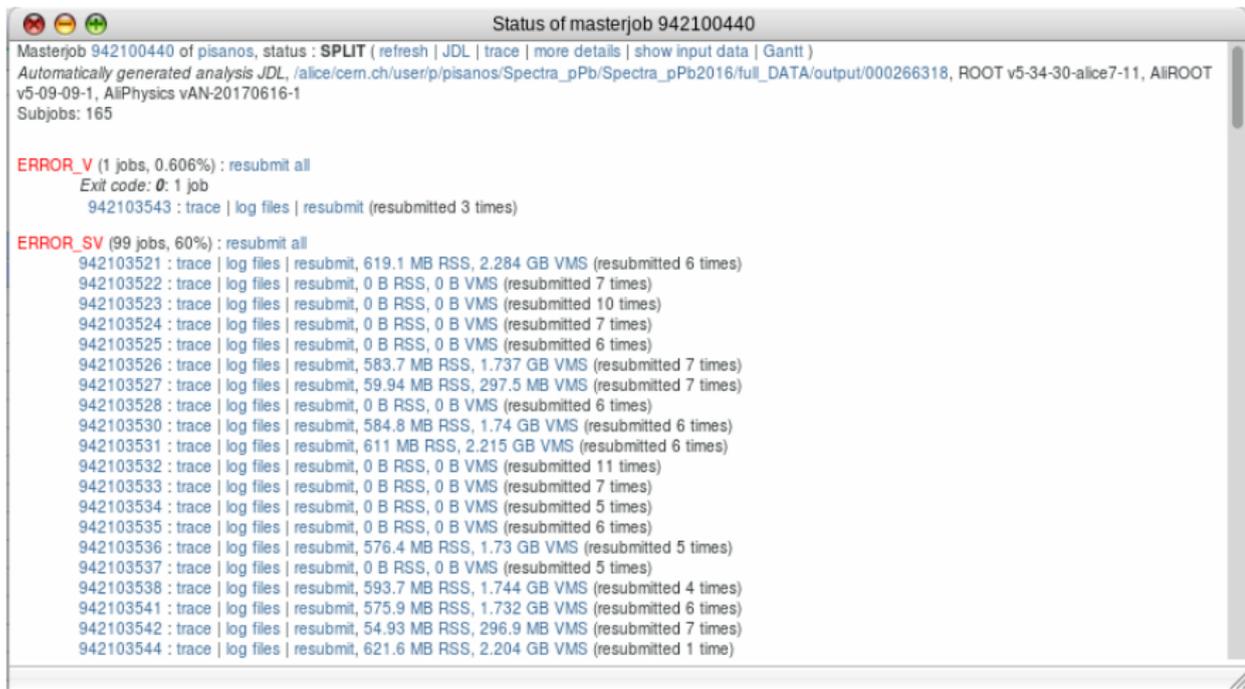


List the status of all submitted jobs

Jobs management : my own jobs | all my roles | all jobs

Status					Active jobs								
PID	Command	Owner	State	Total	Done	Running	Waiting	Assigned	Started	Saving	Validation	Execution	InputB
942100440	full_DATA.sh	pisanos	SPLIT	165	2	72				8	1		
947293324	alroot_dpgsim.sh	alprod	DONE	13	7								6
947293339	alroot_dpgsim.sh	alprod	DONE	13	7								4
947293367	validation script error jobs	alprod	DONE	13	3								10
947293380	alroot_dpgsim.sh	alprod	DONE	13	4								7
947293388	alroot_dpgsim.sh	alprod	DONE	13	8								5
947293392	alroot_dpgsim.sh	alprod	DONE	13	9								1
948748963	alroot_dpgsim.sh	alprod	DONE	5008	4646							26	53
948748967	alroot_dpgsim.sh	alprod	DONE	5008	4570							43	41
948748971	alroot_dpgsim.sh	alprod	DONE	5008	4586							43	38
948748975	alroot_dpgsim.sh	alprod	DONE	5008	4635							35	46

Pick one job and check subjobs



```
Masterjob 942100440 of pisanos, status : SPLIT ( refresh | JDL | trace | more details | show input data | Gantt )
Automatically generated analysis JDL, /alice/cem.ch/user/p/pisanos/Spectra_pPb/Spectra_pPb2016/full_DATA/output/000266318, ROOT v5-34-30-alice7-11, AllROOT
v5-09-09-1, AllPhysics vAN-20170616-1
Subjobs: 165

ERROR_V (1 jobs, 0.606%) : resubmit all
Exit code: 0: 1 job
942103543 : trace | log files | resubmit (resubmitted 3 times)

ERROR_SV (99 jobs, 60%) : resubmit all
942103521 : trace | log files | resubmit, 619.1 MB RSS, 2.284 GB VMS (resubmitted 6 times)
942103522 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 7 times)
942103523 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 10 times)
942103524 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 7 times)
942103525 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 6 times)
942103526 : trace | log files | resubmit, 583.7 MB RSS, 1.737 GB VMS (resubmitted 7 times)
942103527 : trace | log files | resubmit, 59.94 MB RSS, 297.5 MB VMS (resubmitted 7 times)
942103528 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 6 times)
942103530 : trace | log files | resubmit, 584.8 MB RSS, 1.74 GB VMS (resubmitted 6 times)
942103531 : trace | log files | resubmit, 611 MB RSS, 2.215 GB VMS (resubmitted 6 times)
942103532 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 11 times)
942103533 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 7 times)
942103534 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 5 times)
942103535 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 6 times)
942103536 : trace | log files | resubmit, 576.4 MB RSS, 1.73 GB VMS (resubmitted 5 times)
942103537 : trace | log files | resubmit, 0 B RSS, 0 B VMS (resubmitted 5 times)
942103538 : trace | log files | resubmit, 593.7 MB RSS, 1.744 GB VMS (resubmitted 4 times)
942103541 : trace | log files | resubmit, 575.9 MB RSS, 1.732 GB VMS (resubmitted 6 times)
942103542 : trace | log files | resubmit, 54.93 MB RSS, 296.9 MB VMS (resubmitted 7 times)
942103544 : trace | log files | resubmit, 621.6 MB RSS, 2.204 GB VMS (resubmitted 1 time)
```

Check the reason for error

ERROR_V (1 jobs, 0.606%) : resubmit all

Exit code: 0: 1 job

942103543 : trace | [log files](#) | resubmit (resubmitted 3 times)

Access the output and error file

Files of masterjob 942100440, subjob 942103543

RegisterOutput folder: [/alice/cern.ch/user/p/pisanos/recycle/alien-job-942103543](#)

Permissions	Owner	Group	Size	Date	File name
-rwxr-xr-x	pisanos	pisanos	725 B	Fri Jul 28 12:28:47 CEST 2017	log_archive.zip
-rwxr-xr-x	pisanos	pisanos	113 B	Fri Jul 28 12:28:47 CEST 2017	stderr
-rwxr-xr-x	pisanos	pisanos	1.247 KB	Fri Jul 28 12:28:47 CEST 2017	stdout

Read the output or error file

```
*****
* Automatically generated validation script *
* Time: Wed Jul 26 23:50:07 BST 2017
* Dir: /home/sgmali07/home_cream_862531845/CREAM862531845/alien-job-942103543
* Workdir: /home/sgmali07/home_cream_862531845/CREAM862531845/alien-job-942103543
* -----*
total 32
drwxr-x---. 2 sgmali07 alicesgm 4096 Jul 26 23:50 .
drwxr-xr-x. 4 sgmali07 alicesgm 4096 Jul 26 23:45 ..
-rw-r-----. 1 sgmali07 alicesgm 3084 Jul 26 23:48 AliAnalysisTaskMyTask.h
-rw-r-----. 1 sgmali07 alicesgm 1441 Jul 26 23:45 command
-rw-r-----. 1 sgmali07 alicesgm 0 Jul 26 23:45 develTrace_942103543
-rwxr-x---. 1 sgmali07 alicesgm 2516 Jul 26 23:46 full_DATA_validation.sh
-rw-r-----. 1 sgmali07 alicesgm 1095 Jul 26 23:50 resources
-rw-r-----. 1 sgmali07 alicesgm 373 Jul 26 23:50 stdout
-rw-r-----. 1 sgmali07 alicesgm 3418 Jul 26 23:45 wn.xml
* -----*
* ##### Job not validated - no stderr ###
Error = 1
Output file AnalysisResults.root not found. Job FAILED !
Output files were not validated by the analysis manager
* -----*
*****
```

To select runs check QA in RC table

Run Condition Table

TWiki page of LHC16r >

LHC16r	Beam										Bunches				Triggers										Quality		Muon pass 1							
Run#	Bunches	Scheme	Fill #	Energy per beam	Intensity per bunch	Mu	B	B	B	A	B	C	MB interaction	Rate (Hz)	MB Beam-Empty	MB Empty-Empty	Muon Interaction	High multiplicity trigger	EMCAL	Calibration	Global quality	Muon quality	Physics Selection Status	Comment	Field	A	C	D	M	O	C	E		
266318	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0035	427	257	113	6,813,338	699.95				198,283					5,026			1				3	x	1						
266317	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0034	427	257	113	221,389	403.26				8,963					159							3	x	1						
266316	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0035	427	257	113	1,067,052	732.36				28,589					856			1				3	x	1						
266313	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0410	427	257	113	2,213,342	501.32				736,614					455,662			4				3	x	1						
266312	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0412	427	257	113	1,128,160	481.71				448,940					227,355			1				3	x	1						
266305	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0420	427	257	113	608,468	201.08				566,384								1				3	x	1	x					
266304	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0418	427	257	113	195,950	152.73				244,085					53,910			1				3	x	1						
266300	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0431	427	257	113	308,446	169.10				369,603								1				3	x	1	x					
266299	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0406	427	257	113	283,313	132.95				377,872					77,034			1				3	x	1						
266296	L	314 100_200ns_684p_540Pb_432_427_89_20e	5,538	6,499	0.0427	427	257	113	344,165	200.91				335,315					84,988			1				3	x	1						
266256	L	2	0	0		0	0	0																	3								x	

To select runs check QA in RC table

Run Condition Table

TWiki page of LHC16r ->

LHC16r		Beam				Bunches				Triggers							Quality Pass 1								
Run#	Bunches	Scheme	Fill #	Energy per beam	Intensity per bunch	Mu	B	B	B	A	B	C	MB interaction	Rate (Hz)	MB Beam-Empty	MB Empty-Empty	Muon Interaction	High multiplicity trigger	EMCAL	Calibration	Global quality	Muon quality	Physics Selection Status	Comment	Field
266318	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0035	427	257	113	6,813,338	699.95							198,283		5,026				1		3
266317	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0034	427	257	113	221,389	403.26							8,963		159				1		3
266316	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0035	427	257	113	1,067,052	732.36							28,589		856				1		3
266313	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0410	427	257	113	2,213,342	501.32							736,614		455,662				1		3
266312	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0412	427	257	113	1,128,160	481.71							448,940		227,355				1		3
266305	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0420	427	257	113	608,468	201.08							566,384						1		3
266304	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0418	427	257	113	195,950	152.73							244,065		53,910				1		3
266300	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0431	427	257	113	308,446	169.10							369,603						1		3
266299	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0406	427	257	113	283,313	132.95							377,872		77,034				1	TPC test - bad for T...	3
266296	L	314 100_200ms_684p_540Pb_432_427_89_200e	5,538	6,499	0.0427	427	257	113	344,165	200.91							335,315		84,988				1	TPC test - bad for T...	3
266256	L	2	0	0	0	0	0	0																	3



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PWG-DQ / PWGDQ-47
Measurement of quarkonium production at forward rapidity in pp collisions at $\sqrt{s} = 8$ TeV

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Details

Type:	Analysis Paper	Status:	IN COLLABORATION
Priority:	Major		(View Workflow)
Component/s:	PAG-JPSI2MuMu,	Resolution:	Unresolved
Labels:	8TeV Jpsi Upsilon pp psi(2S)		
Paper url:	https://aliceinfo.cern.ch/ArtSubmission/node/1827		
Analysis ID:	PWGDQ-41		
Data Set:	LHC12h, LHC12i		
Final Results URL:	https://aliceinfo.cern.ch/Notes/node/395		

People

Assignee:	Indranil Das
Reporter:	Javier Castillo Castellanos
Lead people:	Antoine Lardeux,
Votes:	Vote for this issue
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Dates

Created:	03/Sep/15 10:12 AM
Updated:	03/Sep/15 10:15 AM

Description

Paper on J/psi, psi(2S), Upsilon(1S), Upsilon(2S) and Upsilon(3S) production at forward rapidity in pp collisions at $\sqrt{s} = 8$ TeV

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THANK YOU