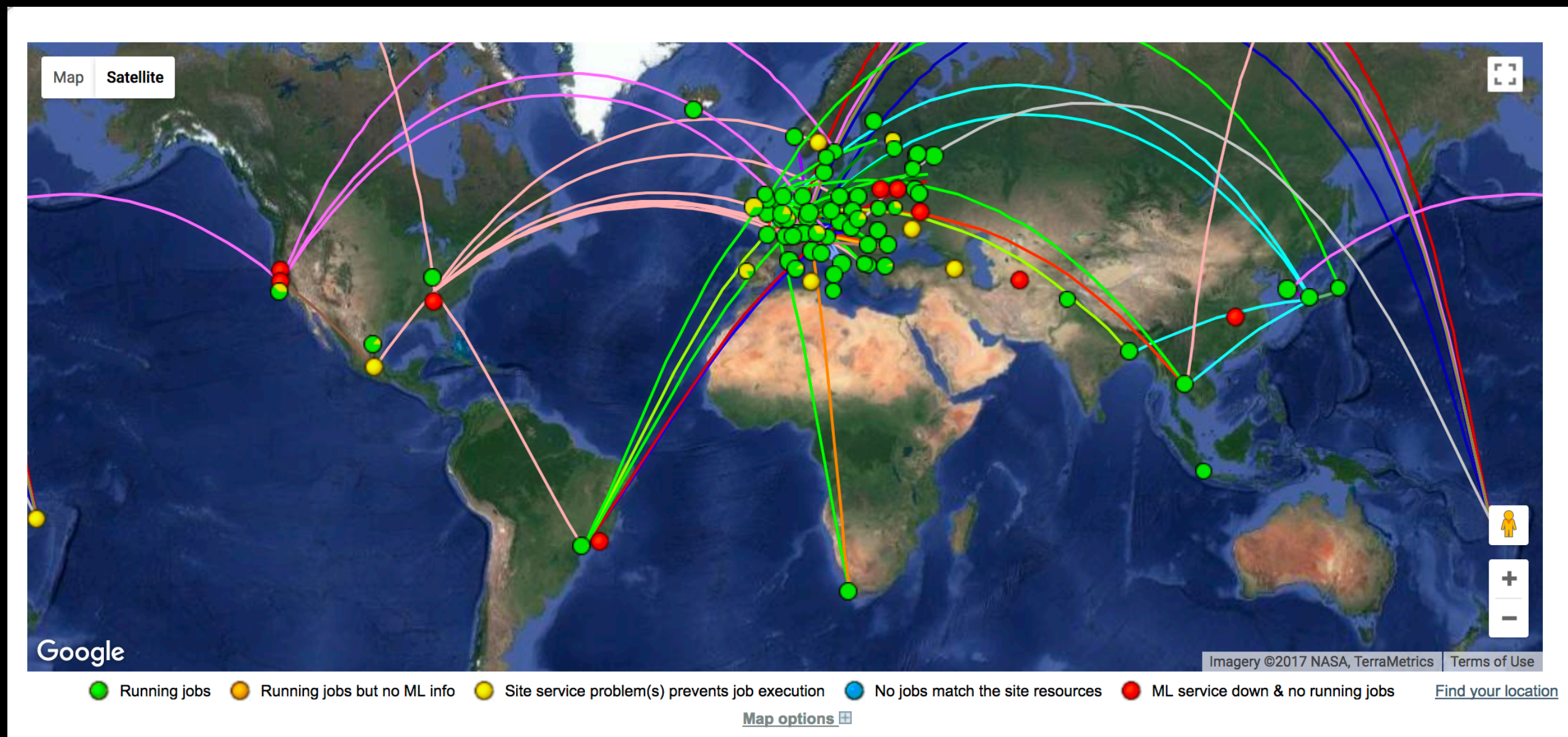
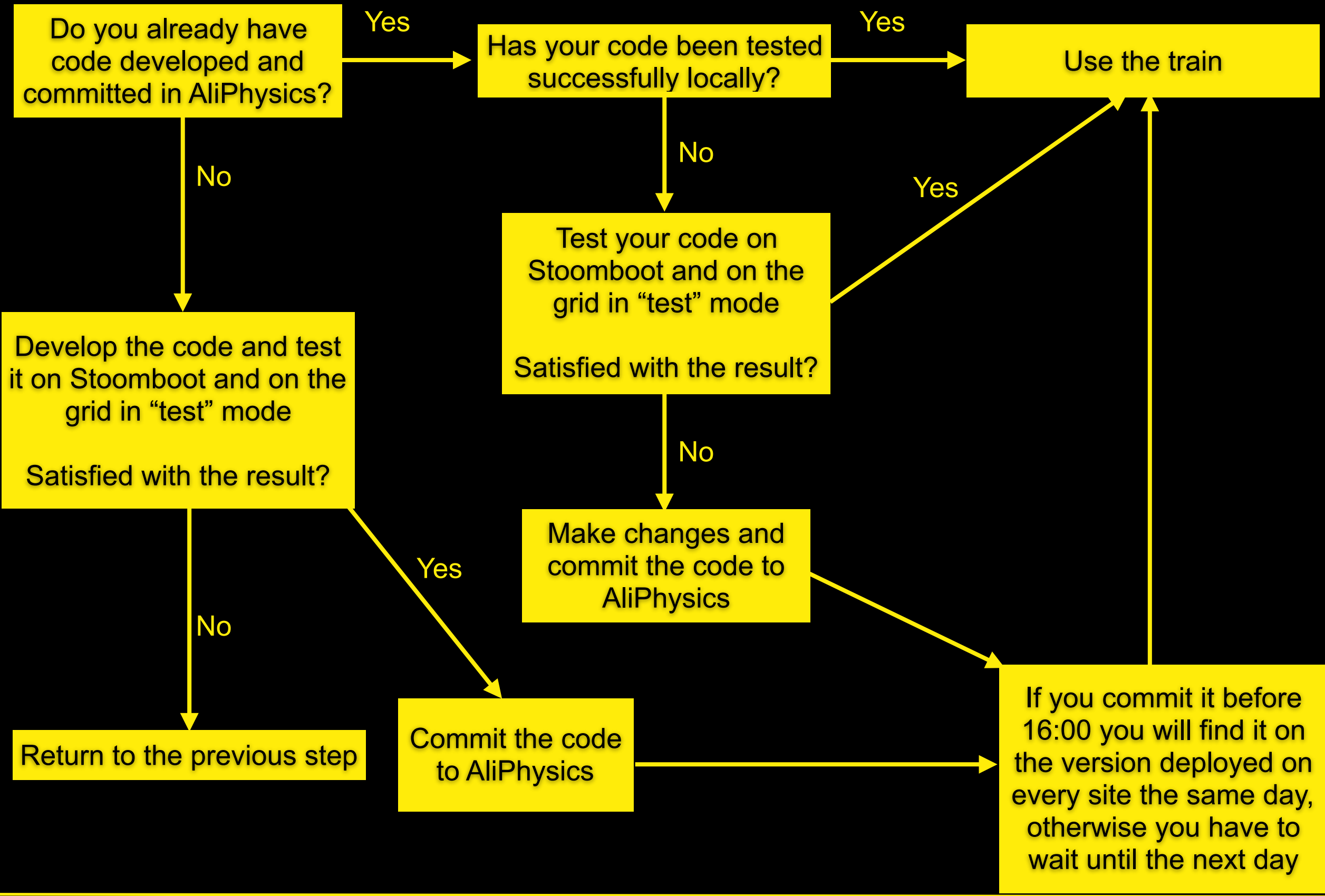


Introduction to organised analysis on the GRID



- ✓ Storing and processing the data produced by the LHC experiments can not be done at a single computing centre → need of distributed computing resources i.e. the computing GRID
- ✓ Data samples can be copied locally (e.g. what we do with dcache) but this is not practical (e.g. many data samples, many AOD versions, MC productions,...)
- ✓ The only way to systematically analyse entire data samples (e.g. AOD LHC15o) and produce papers
- ✓ Two ways of analysing data on the GRID
 - 👁 Individual user analysis (covered last time)
 - No need to commit the code (although strongly advised)
 - Lots of time spent babysitting
 - 👁 Organised user analysis (following slides)
 - Your code needs to be committed in AliPhysics
 - All the “boring” babysitting job is done automatically by the system
 - Within a couple of days max you get the result of an entire sample

- ✓ GRID certificate
- ✓ Gone through the previous steps
 - 👁 Usage of Stoomboot
 - 👁 Individual GRID analysis
- ✓ Analysis code committed in AliPhysics
 - 👁 Your code should have been tested locally that it runs and produces the wanted output
 - 👁 Debugging on the GRID is not practical, try to avoid it!!!



Grid sites monitoring map - A

alimonitor.cern.ch/map.jsp

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Shifter's dashboard

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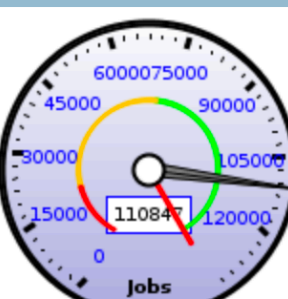
HepSpec

Dynamic charts

close all

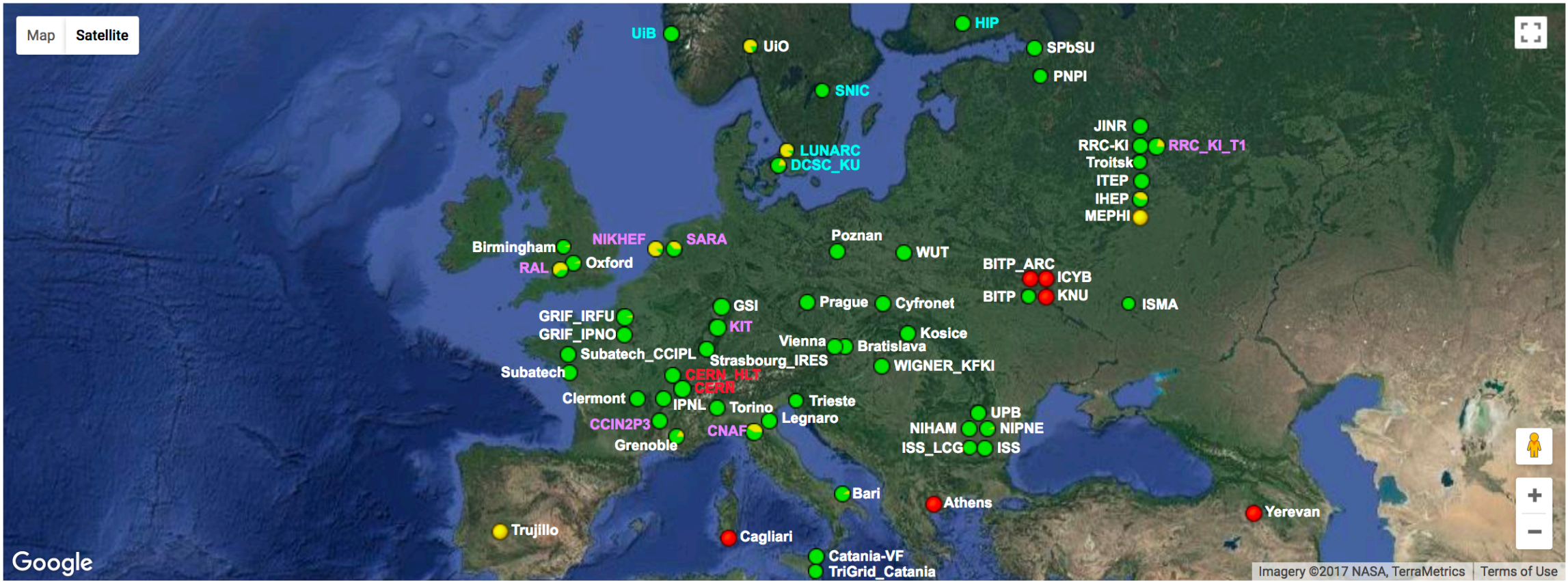
This page: bookmark, URL

Active jobs trend



Map

Satellite



● 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

Find your location

Analysis trains - ALICE Grid M

https://alimonitor.cern.ch/trains/

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close all

Active jobs trend



The LEGO framework



Usage statistics

ALICE Analysis Trains

PWG	Train name	I'm in	Last run	Description	Train operator(s)
CF CF_PbPb		✓	29 Oct 2017	Train for data PbPb running	akubera, jbuxton, jgrosseo, marsland, mazimmer, miweber
CF CF_PbPb_ESD			15 Sep 2017	Train for data PbPb (ESD) running (runs on Request)	akubera, jbuxton, marsland, miweber
CF CF_PbPb_MC		✓	28 Oct 2017		akubera, jbuxton, jgrosseo, marsland, mazimmer, miweber
CF CF_PbPb_MC_AOD			18 Oct 2017		akubera, jbuxton, jgrosseo, marsland, miweber
CF CF_pp		✓	19 Oct 2017	Train for AOD pp correlation analyses	akubera, jbuxton, jgrosseo, marsland, miweber
CF CF_pPb		✓	22 Oct 2017	pPb AOD analysis train (Data)	akubera, jbuxton, jgrosseo, marsland, miweber
CF CF_pPb_MC			21 Oct 2017	pPb AOD analysis train (MC)	akubera, jbuxton, jgrosseo, marsland, miweber
CF CF_pp_ESD			06 Nov 2015		akubera, jbuxton, jgrosseo, marsland
CF CF_pp_MC		✓	16 Oct 2017	Train for AOD MC pp correlation analyses	akubera, eleogran, jbuxton, jgrosseo, marsland, miweber
CF CF_pp_MC_ESD			15 Dec 2016		akubera, jbuxton, jgrosseo, majanik, marsland
DQ DQ_Dimuons_PbPb			29 Sep 2017		jcastill
DQ DQ_Dimuons_PbPb_ESD			08 Apr 2016		jcastill
DQ DQ_Dimuons_pp			17 Oct 2017	Data pp: test for Dimuon	jcastill
DQ DQ_Dimuons_pPb			15 Jun 2017		jcastill
DQ DQ_Dimuons_pPb_ESD			09 May 2017		jcastill
DQ DQ_Dimuons_pPb_MC					jcastill
DQ DQ_Dimuons_pp_ESD			21 May 2016		jcastill
DQ DQ_Dimuons_pp_MC					jcastill
DQ DQ_PbPb_AOD			25 Oct 2017	AOD train	miweber, pdillens, raul, rbailhac, tgunji
DQ DQ_PbPb_ESD			26 Sep 2017	ESD	miweber, pdillens, raul, rbailhac, tgunji
DQ DQ_PbPb_MC_AOD			12 Oct 2017	MC train for Pb-Pb AOD	miweber, pdillens, raul, rbailhac, tgunji
DQ DQ_PbPb_MC_ESD			19 Oct 2017		miweber, pdillens, raul, rbailhac, tgunji

Analysis trains - CF_PbPb - AL

https://alimonitor.cern.ch/trains/train.jsp?train_id=4

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Active jobs trend

Analysis trains

Jump to: Handlers Wagons Datasets Configuration Runs

Name	CF_PbPb (train temporary file dir)
PWG	CF
Description	Train for data PbPb running

Handlers

Name	Macro path (parameters)
AOD Handler	ANALYSIS/macros/train/AddAODHandler.C ()

Wagons

Name	Owner		Dependencies	FILTE R_P...	FILTE R_P...	LHC10 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...
Group Common														
Group Default														
Group Attic														

Filters:

☐ My wagons
 ☐ Active wagons
 (used in the last month or activated)
 ☐ Activated wagons

Add new wagon »

Search:

Creating new wagon

Basic settings

Advanced settings

Subwagon configuration

Testing statistics

[Click here for documentation](#)

Wagon name

NB. Only alphanumerical characters (a-z, A-Z, 0-9) and underscore (_) allowed.

Wagon group

Default

Macro path

By default macros are searched within \$ALICE_PHYSICS. If you need a macro in \$ALICE_ROOT, please specify \$ALICE_ROOT in front of the path.
Examples: PWGCF/macros/AddTaskPhiCorrelations.C or \$ALICE_ROOT/ANALYSIS/macros/AddTaskPIDResponse.C

☐ AddTask macro needs AliEn connection

Macro parameters

Example: kTRUE, "param"

Macro customization

Note: you get access to the created task by using the variable `__R_ADDTASK__`.
Do not forget the semicolon (;) at the end of the lines.
Example: `__R_ADDTASK__->SelectCollisionCandidates(AliVEvent::kAnyINT);`

Libraries

Note: separate libraries with comma (,); do not specify *lib* in front
Example: CORRFW,EMCALUtils

Submit »

Creating new wagon

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Click here for documentation

Dependencies
(Select more than one
by pressing *CTRL*)
[Sort alphabetically](#)

badrajeettriggerd
BalanceFunction_Psi1
BalanceFunction_Psi2
BalanceFunction_Psi3
BayesianPIDflowQC
BayesianPIDflowV0EP
BayesianPIDflowV0SP
BayesianPIDflowV0SP_2
centrality_check
CF_PbPb_test_mait

Output file

AnalysisResults.root

Configuration

☐ This wagon cannot process several runs within the same job

Terminate File

Only needed when files are produced in Terminate()
Example: event_stat.root

Copy from other wagon

✓ - no copy -
- show only my wagons - press copy -->
- show wagons from all trains - press copy -->
CF/CF_PbPb/BalanceFunction_Psi1
CF/CF_PbPb/BalanceFunction_Psi2
CF/CF_PbPb/BalanceFunction_Psi3
CF/CF_PbPb/KaonQa
CF/CF_PbPb/KaonQb
CF/CF_PbPb/mixedHarmonicLikeSignNegLHC10h
CF/CF_PbPb/mixedHarmonicLikeSignNegLHC15o
CF/CF_PbPb/mixedHarmonicLikeSignPosLHC10h
CF/CF_PbPb/mixedHarmonicLikeSignPosLHC15o
CF/CF_PbPb/mixedHarmonicsCentrality0To5MinusMinusPions1
CF/CF_PbPb/mixedHarmonicsCentrality0To5OppositeChargePions1
CF/CF_PbPb/mixedHarmonicsCentrality0To5PlusPlusPions1
CF/CF_PbPb/mixedHarmonicsCentrality10To20MinusMinusPions1
CF/CF_PbPb/mixedHarmonicsCentrality10To20OppositeChargePions1
CF/CF_PbPb/mixedHarmonicsCentrality10To20PlusPlusPions1
CF/CF_PbPb/mixedHarmonicsCentrality20To30MinusMinusPions1
CF/CF_PbPb/mixedHarmonicsCentrality20To30OppositeChargePions1

Copy

WARNING: This overwrites all settings in the current

Creating new wagon

Basic settings

Advanced settings

Subwagon configuration

Testing statistics

Click here for documentation

Wagon name

mixedHarmonicLikeSignNegLHC1

NB. Only alphanumerical characters (a-z, A-Z, 0-9) and underscore (_) allowed.

Wagon group

Default

Macro path

PWGCF/FLOW/macros/parity/AddTaskCMEAnalysis.C

By default macros are searched within \$ALICE_PHYSICS. If you need a macro in \$ALICE_ROOT, please specify \$ALICE_ROOT in front of the path.
Examples: PWGCF/macros/AddTaskPhiCorrelations.C or \$ALICE_ROOT/ANALYSIS/macros/AddTaskPIDResponse.C

☐ AddTask macro needs AliEn connection

Macro parameters

kTRUE,2015,kTRUE,kTRUE,AliFlowEventCuts::kVZERO,"Qa",0.0,kFALSE,32,-1,-1, 0,-1,kTRUE,kTRUE,kTRUE,kFALSE, kFALSE

Example: kTRUE, "param"

Macro customization

Note: you get access to the created task by using the variable `__R_ADDTASK__`.
Do not forget the semicolon (;) at the end of the lines.
Example: `__R_ADDTASK__->SelectCollisionCandidates(AliVEvent::kAnyINT);`

Libraries

PWGflowBase,PWGflowTasks

Note: separate libraries with comma (,); do not specify *lib* in front
Example: CORRFW,EMCALUtils

Submit »

Datasets



Filters:

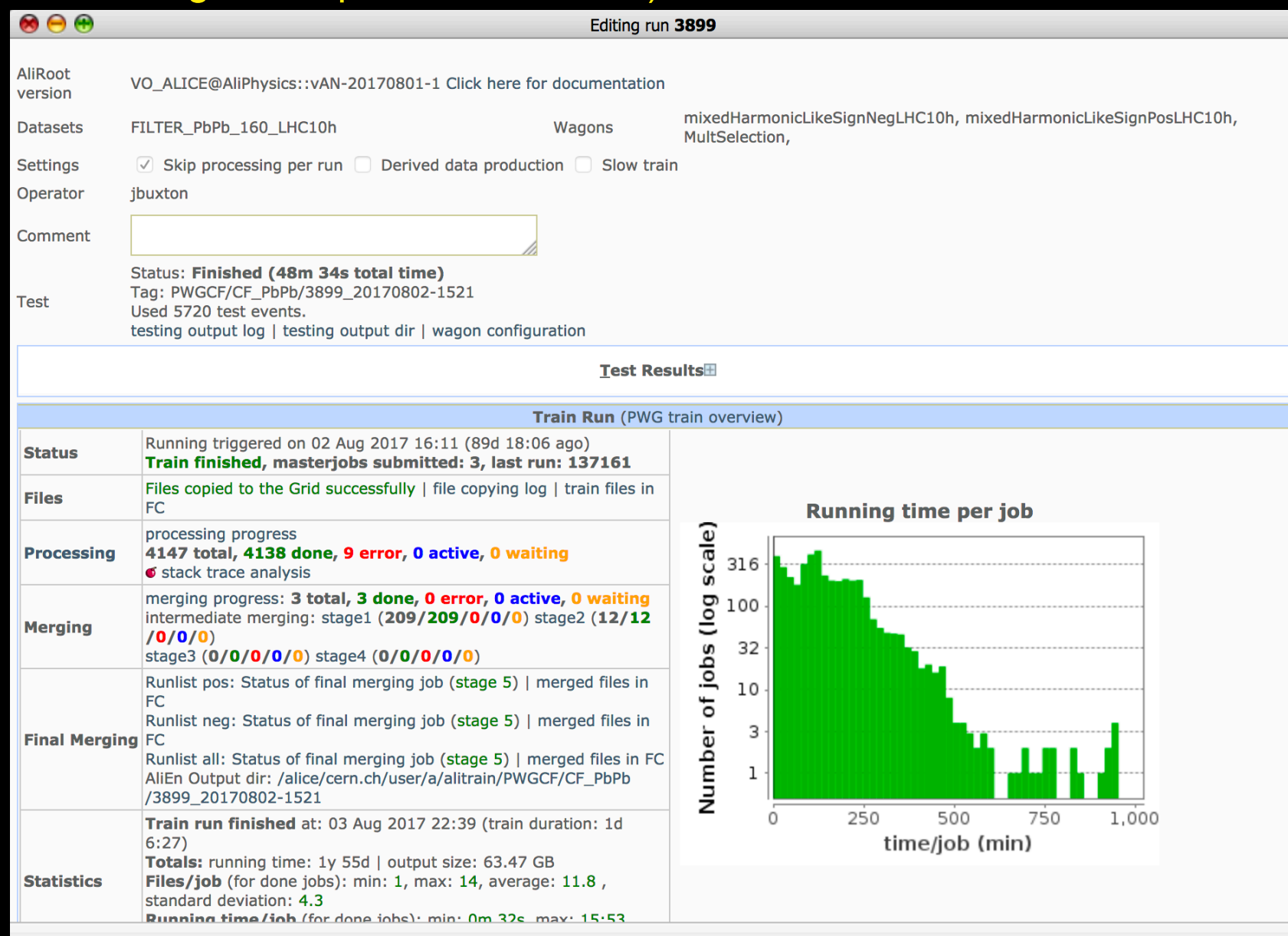
☐ Activated datasets

Dataset name	Reference production	
FILTER_PbPb_160_LHC10h	FILTER_Pb-Pb_160_LHC10h	Runlist pos: 139510, 139507, 139505, 139503, 139465, 139438, 139437, 139360, 139329, 139328, 139314, 138652, 138638, 138624, 138621, 138583, 138582, 138579, 138578, 138534, 138469, 138442, 138439, 138438, 138396, 138395, 137685, 137639, 137638, 137608, 137595, 137549, 137546, 137544, 137541, 137539, 137531, 137530, 137443, 137441, 137440, 137439, 137434, 137432, 137431, 137430, 137366, 137243, 137236, 137235, 137232, 137225, 137224, 137223, 137222, 137221, 137220, 137219, 137218, 137217, 137216, 137215, 137214, 137213, 137212, 137211, 137210, 137209, 137208, 137207, 137206, 137205, 137204, 137203, 137202, 137201, 137200, 137199, 137198, 137197, 137196, 137195, 137194, 137193, 137192, 137191, 137190, 137189, 137188, 137187, 137186, 137185, 137184, 137183, 137182, 137181, 137180, 137179, 137178, 137177, 137176, 137175, 137174, 137173, 137172, 137171, 137170, 137169, 137168, 137167, 137166, 137165, 137164, 137163, 137162, 137161, 137160, 137159, 137158, 137157, 137156, 137155, 137154, 137153, 137152, 137151, 137150, 137149, 137148, 137147, 137146, 137145, 137144, 137143, 137142, 137141, 137140, 137139, 137138, 137137, 137136, 137135, 137134, 137133, 137132, 137131, 137130, 137129, 137128, 137127, 137126, 137125, 137124, 137123, 137122, 137121, 137120, 137119, 137118, 137117, 137116, 137115, 137114, 137113, 137112, 137111, 137110, 137109, 137108, 137107, 137106, 137105, 137104, 137103, 137102, 137101, 137100, 137099, 137098, 137097, 137096, 137095, 137094, 137093, 137092, 137091, 137090, 137089, 137088, 137087, 137086, 137085, 137084, 137083, 137082, 137081, 137080, 137079, 137078, 137077, 137076, 137075, 137074, 137073, 137072, 137071, 137070, 137069, 137068, 137067, 137066, 137065, 137064, 137063, 137062, 137061, 137060, 137059, 137058, 137057, 137056, 137055, 137054, 137053, 137052, 137051, 137050, 137049, 137048, 137047, 137046, 137045, 137044, 137043, 137042, 137041, 137040, 137039, 137038, 137037, 137036, 137035, 137034, 137033, 137032, 137031, 137030, 137029, 137028, 137027, 137026, 137025, 137024, 137023, 137022, 137021, 137020, 137019, 137018, 137017, 137016, 137015, 137014, 137013, 137012, 137011, 137010, 137009, 137008, 137007, 137006, 137005, 137004, 137003, 137002, 137001, 137000, 136999, 136998, 136997, 136996, 136995, 136994, 136993, 136992, 136991, 136990, 136989, 136988, 136987, 136986, 136985, 136984, 136983, 136982, 136981, 136980, 136979, 136978, 136977, 136976, 136975, 136974, 136973, 136972, 136971, 136970, 136969, 136968, 136967, 136966, 136965, 136964, 136963, 136962, 136961, 136960, 136959, 136958, 136957, 136956, 136955, 136954, 136953, 136952, 136951, 136950, 136949, 136948, 136947, 136946, 136945, 136944, 136943, 136942, 136941, 136940, 136939, 136938, 136937, 136936, 136935, 136934, 136933, 136932, 136931, 136930, 136929, 136928, 136927, 136926, 136925, 136924, 136923, 136922, 136921, 136920, 136919, 136918, 136917, 136916, 136915, 136914, 136913, 136912, 136911, 136910, 136909, 136908, 136907, 136906, 136905, 136904, 136903, 136902, 136901, 136900, 136899, 136898, 136897, 136896, 136895, 136894, 136893, 136892, 136891, 136890, 136889, 136888, 136887, 136886, 136885, 136884, 136883, 136882, 136881, 136880, 136879, 136878, 136877, 136876, 136875, 136874, 136873, 136872, 136871, 136870, 136869, 136868, 136867, 136866, 136865, 136864, 136863, 136862, 136861, 136860, 136859, 136858, 136857, 136856, 136855, 136854, 136853, 136852, 136851, 136850, 136849, 136848, 136847, 136846, 136845, 136844, 136843, 136842, 136841, 136840, 136839, 136838, 136837, 136836, 136835, 136834, 136833, 136832, 136831, 136830, 136829, 136828, 136827, 136826, 136825, 136824, 136823, 136822, 136821, 136820, 136819, 136818, 136817, 136816, 136815, 136814, 136813, 136812, 136811, 136810, 136809, 136808, 136807, 136806, 136805, 136804, 136803, 136802, 136801, 136800, 136799, 136798, 136797, 136796, 136795, 136794, 136793, 136792, 136791, 136790, 136789, 136788, 136787, 136786, 136785, 136784, 136783, 136782, 136781, 136780, 136779, 136778, 136777, 136776,

Name	Owner 👤	📦 Dependencies	FILTE R_P...	FILTE R_P...	LHC10 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC15 o_p...	LHC15 o_p...	LHC15 o_p...
Group Common📦																
Group Default📦																
KaonQa	pchrist	PIDResponse	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
KaonQb	pchrist	PIDResponse	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
mixedHarmonicLikeSignNegLHC10h	pchrist	MultSelection	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
mixedHarmonicLikeSignNegLHC15o	pchrist	MultSelection	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
mixedHarmonicLikeSignPosLHC10h	pchrist	MultSelection	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
mixedHarmonicLikeSignPosLHC15o	pchrist	MultSelection	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
mixedHarmonicUnlikeSignLHC10h	pchrist	MultSelection	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
mixedHarmonicUnlikeSignLHC15o	pchrist	MultSelection	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
PionQa	pchrist	PIDResponse	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
PionQb	pchrist	PIDResponse	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
ProtonQa	pchrist	PIDResponse	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌
ProtonQb	pchrist	PIDResponse	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌	❌

Dependencies	FILTE R_P...	FILTE R_P...	LHC10 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC11 h_A...	LHC15 o_p...	LHC15 o_p...	LHC15 o_p...	LHC15 o_p...	LHC15 o_p...	LHC15 o_p...	LHC15 o_p...	LHC15 o_p...
response	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
response	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Selection	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Selection	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓
Selection	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Selection	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓
Selection	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Selection	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✓
response	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
response	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
response	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
response	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

- ✓ Once the train is done, you get an automatic notification
- ✓ Go to MonALISA to retrieve the output directory
- ✓ Then get a token, enter aliensh and copy the output file from the GRID locally (use the knowledge from previous tutorials)



- ✓ Train operators of every PWG
 - 👁 Normally 2-3 PhD students assigned to this task as part of their service task
 - 👁 Remember this is not their primary activity

- ✓ For the CF group when your wagon is ready send a mail to alice-analysis-pwgcf-train-operators@cern.ch
 - 👁 Indicate who you are, that you enabled your wagons and that you selected the relevant datasets (it does not harm to add the names of the wagons and which data sets)
 - ☐ Feel free to include me and Davide

- ✓ The trains run 3 times per week

**"That's it
folks"**

