ALICE Data Quality Monitoring

Introduction to shifter's operations

Part 3

D. De Gruttola for the DQM core

CERN, 06th May 2018

Introduction to DQM shifter's operations

- Reporting and the ALICE logbook -

Reporting detectors problems

Reporting framework/AMORE problems

Log entries and End-Of-Shift report

Runs @ ALICE logbook

DQM information

How to retrieve and archive objects

How to check Run Quality Flag per detector

Reporting detector's problems

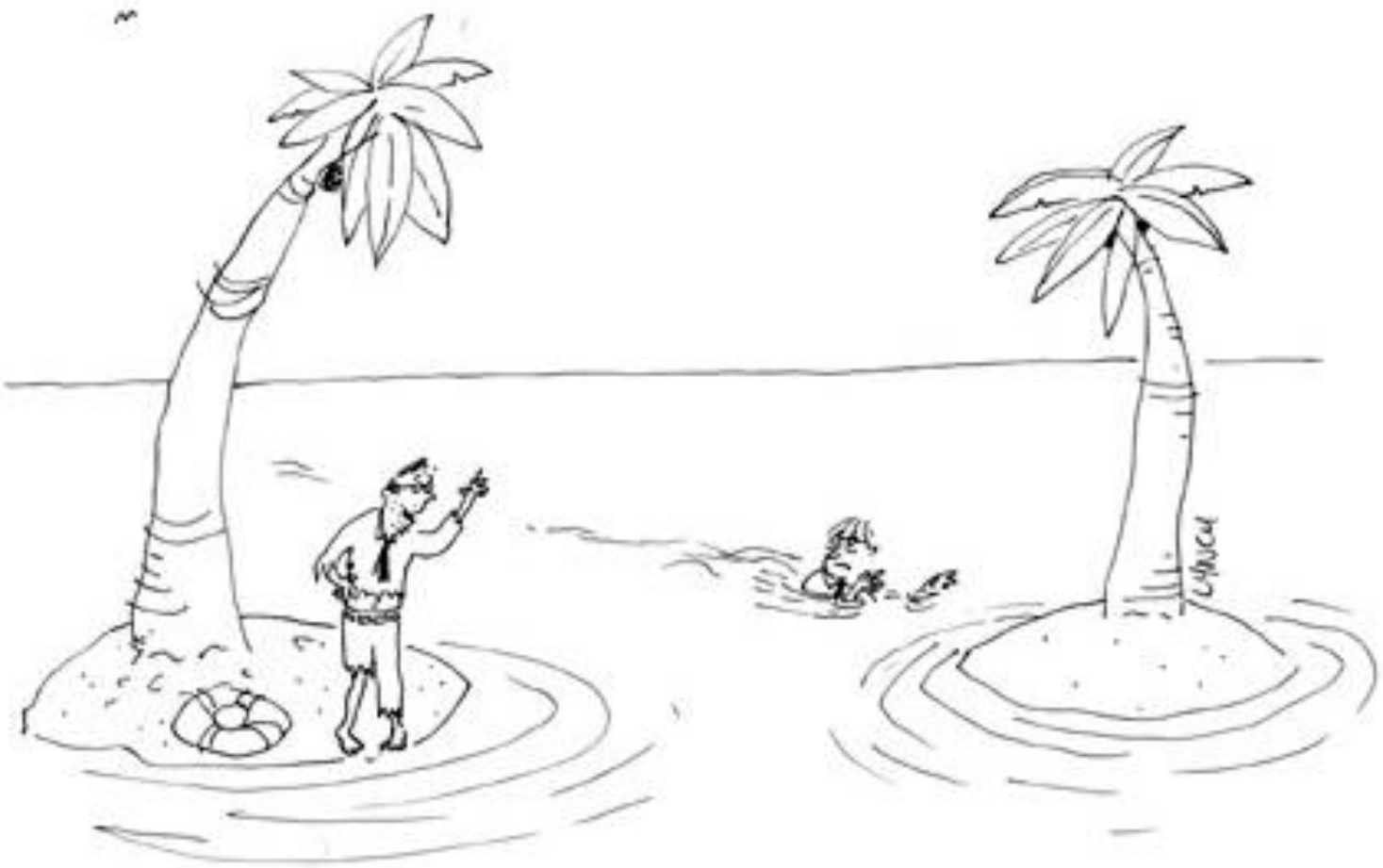
- **What is a "detector problem"?**
  - **A yellow/red/purple quality flag**
  - Most of the plots have lines to mark limits for expected values
  - Some plots have warning/alarm boxes that tell you so …
  - Anything that is referred to as so in the detector's Twiki

- **What to do?**
  - Check first the instructions in the Twiki

… (continue in next slide) ...

Reporting detector problems

- Report Immediately to the **shift leader**

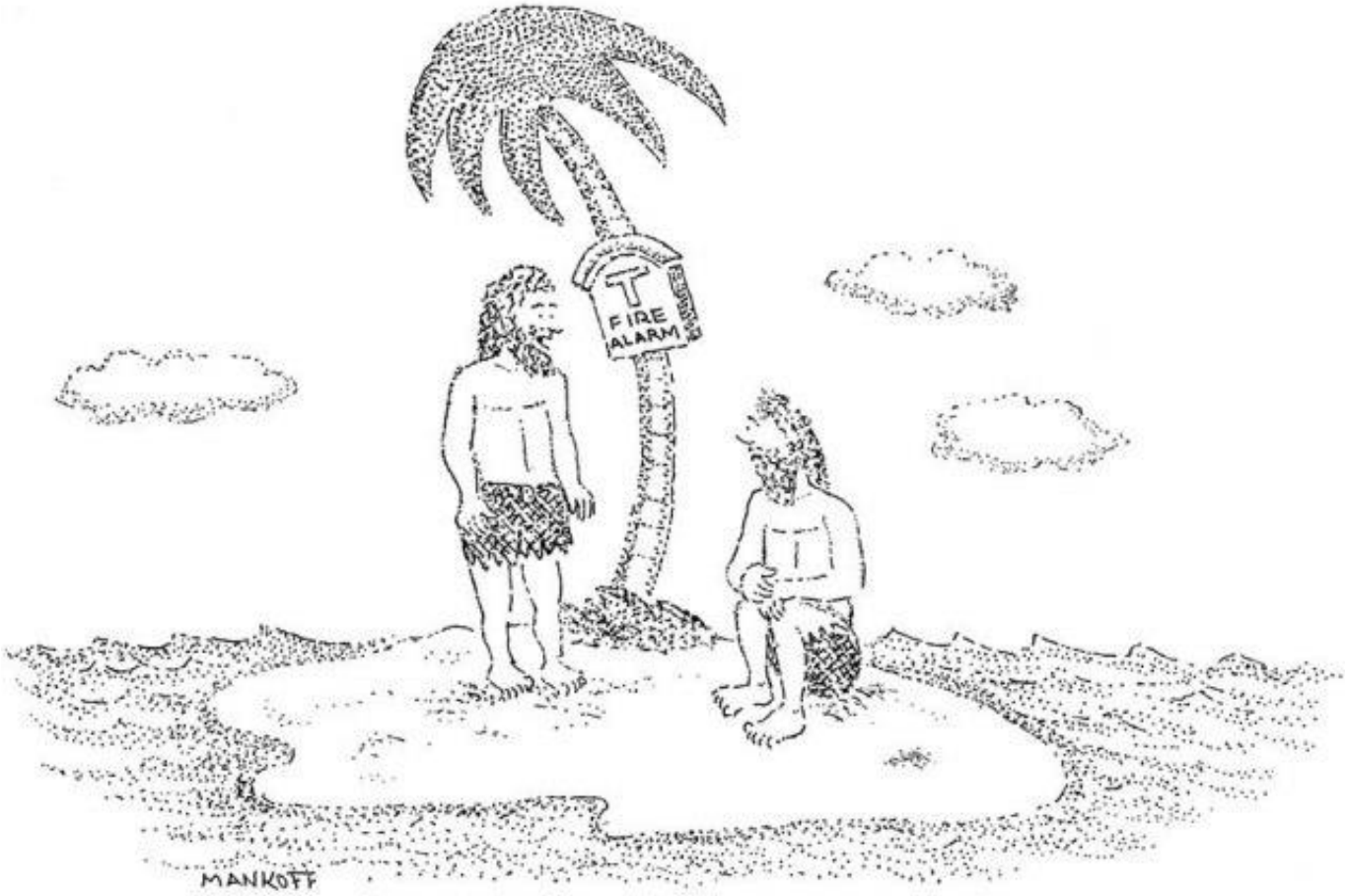


"Thank God! Somebody to network with!"

Do not be afraid of interacting with the other shifters!!!

Reporting detector problems

- Discuss with him if to report to the **detector on-call/experts** (unless differently specified in the twiki instructions)



"I still say we pull it and deal with the consequences of its being a false alarm when they come."

Reporting detector's problems

- **What to do?**
  - Check first the instructions in the Twiki
  - Report Immediately to the **shift leader**
  - Discuss with him if to report to the **detector on-call/experts** (unless differently specified)
  - Mention the problem in a dedicated **logbook entry if not quickly solved**
  - **If a problem appears in a specific run, add a logbook entry as a comment on it (do not wait the EOS!), except agent crashes**
  - **do not make separate entries for agent crashes: add the info in the EOS report and attach logs (select the interested subsystems when posting the EOS report)**
  - Mention it in your **EOS report**

Please be accurate in your reports!

Reporting framework/AMORE problems

- Report problems of the DQM framework
  - call the **DQM on-call** when problems that prevent normal online operations occur
  - if there was an agent crash report it **in the EOS, attaching logs to the entry and selecting the interested subsystem** (do not send emails to the detector DQM experts for crashes)
  - send an email to DAQ mailing list (**alice-datesupport@cern.ch**) only if the troubleshooting section of the Twiki suggests to do so for typical errors!

Please try to provide useful logs and error traces to allow people to debug!
Please specify the run conditions when the problem occurred!

DQM core for support: alice-dqm-support@cern.ch

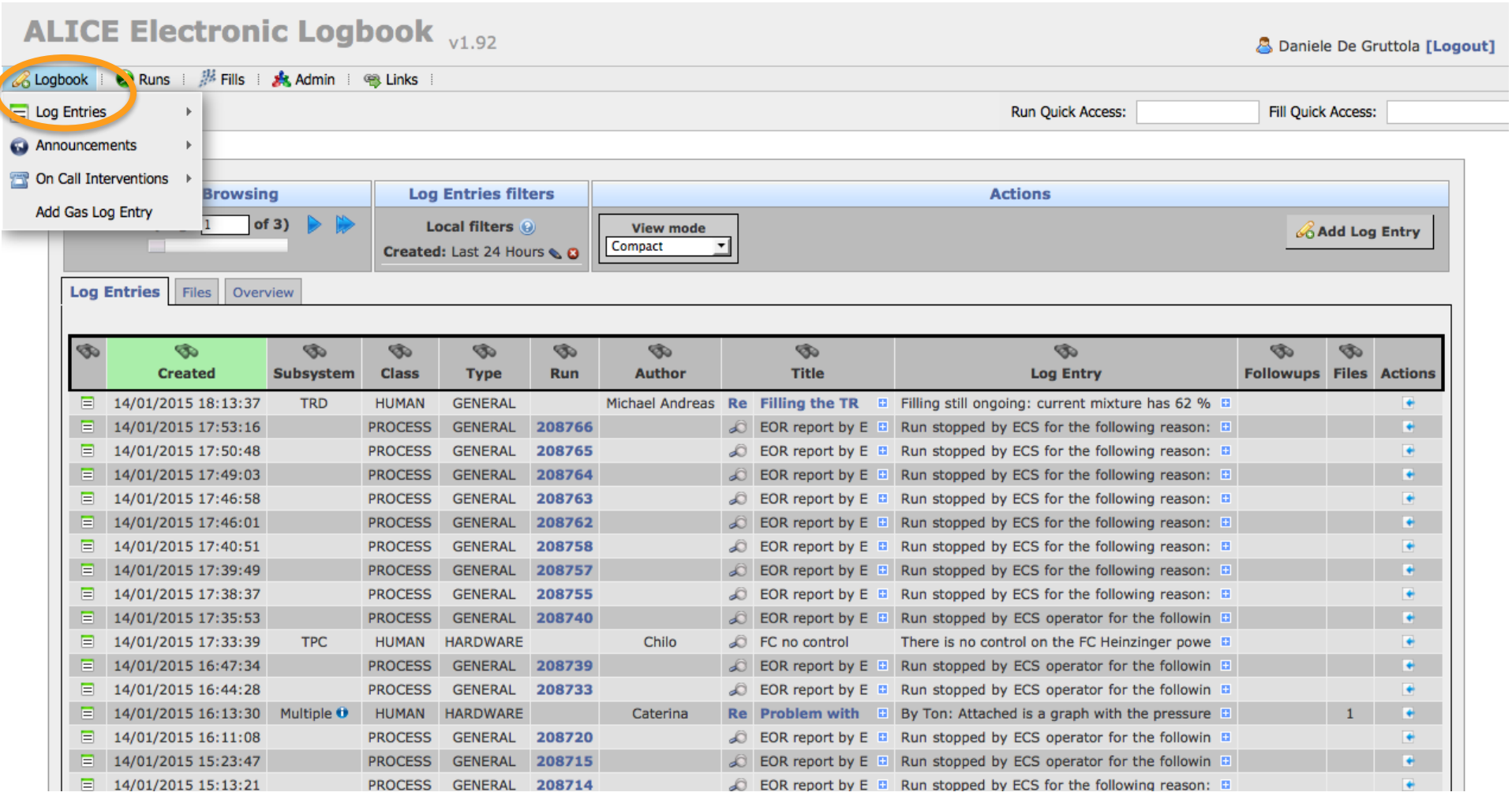
Policy for reporting – main recommendations

- Problems that affect one specific run should be mentioned in a comment attached to the run entry in the logbook
- Select DQM/QA when posting the EOS report
- Select the subsystems interested by an agent crash when posting the EOS report
- Attach to the EOS report the logs of the agent's crashes, do not send emails (anymore)
- Write a separate EOS report for Offline and DQM (will be automatically sent to different responsible mailing lists)

Log entries and End-Of-Shift report

Add your EOS report as Log Entry

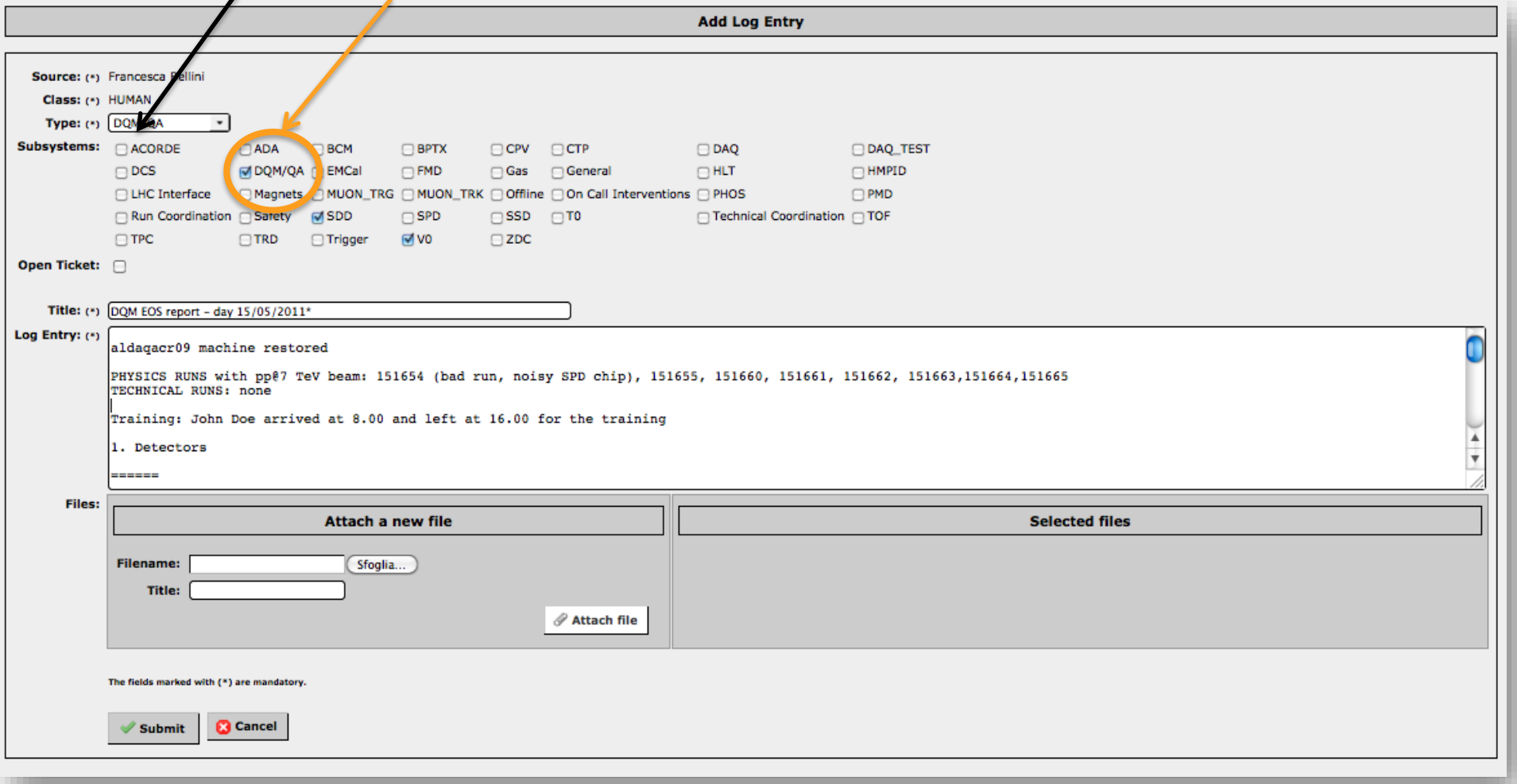
Make sure you have writing permissions on the logbook before coming to the shift!



Log entries and End-Of-Shift report

Specify Type: EOS

Specify Subsystems: DQM/QA (+ subsystems in case of agent crashes)



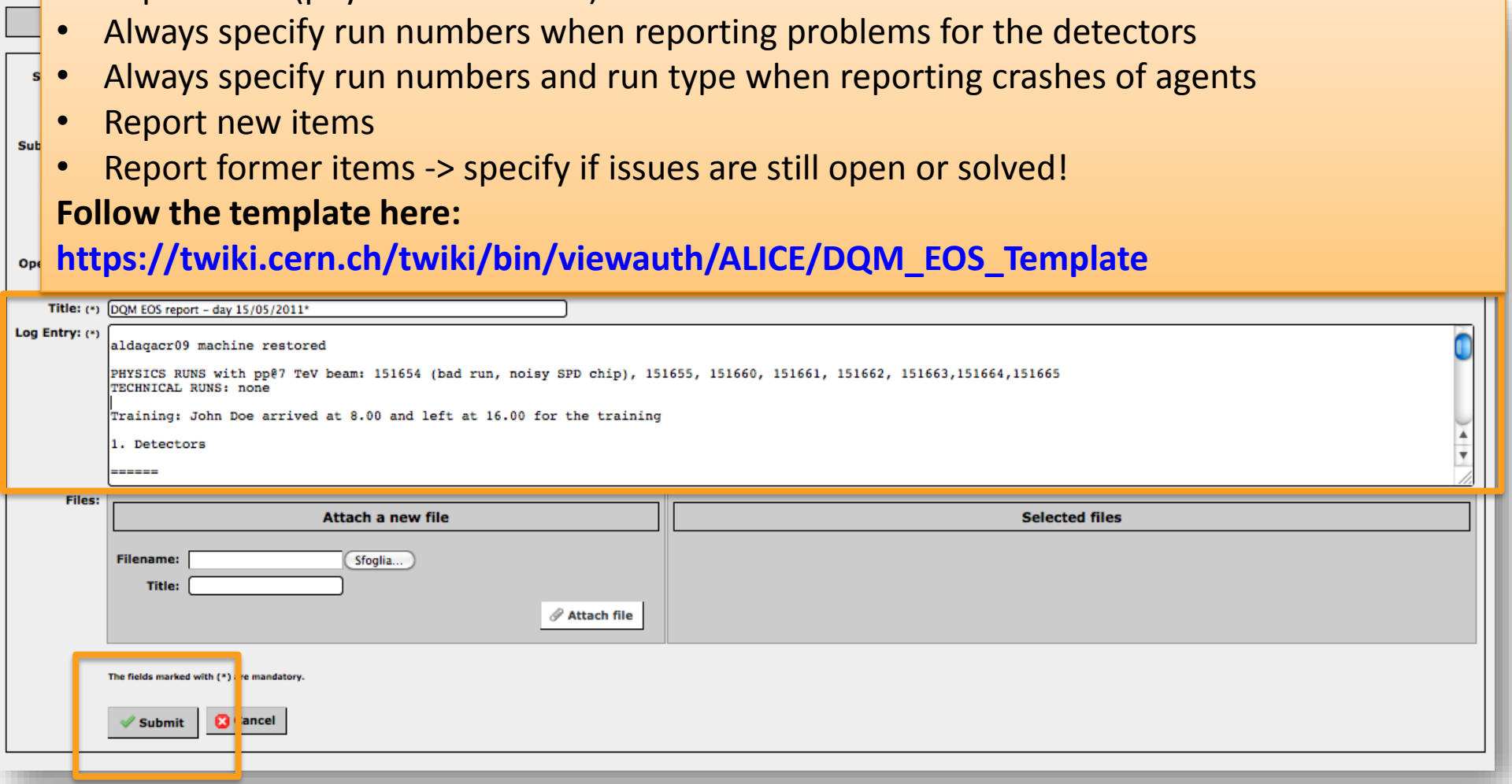
Log entries and End-Of-Shift report

Be detailed!

- Report about trainees
- Report runs (physics + technical)
- Always specify run numbers when reporting problems for the detectors
- Always specify run numbers and run type when reporting crashes of agents
- Report new items
- Report former items -> specify if issues are still open or solved!

Follow the template here:

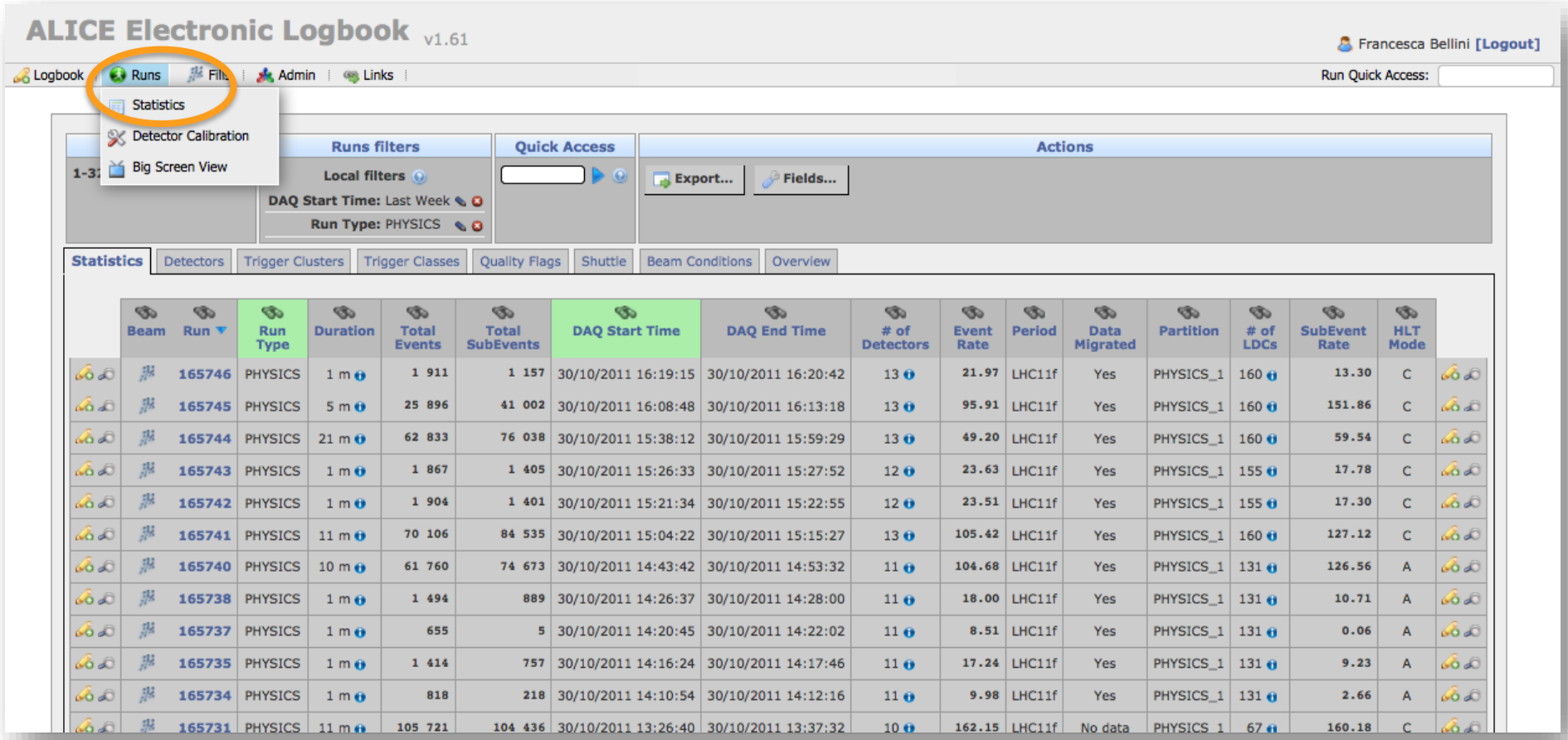
https://twiki.cern.ch/twiki/bin/viewauth/ALICE/DQM_EOS_Template



Submit entry and remember to confirm also the preview!

Runs @ ALICE logbook

Go to the **Runs > Statistics** page



Beam	Run	Run Type	Duration	Total Events	Total SubEvents	DAQ Start Time	DAQ End Time	# of Detectors	Event Rate	Period	Data Migrated	Partition	# of LDCs	SubEvent Rate	HLT Mode
	165746	PHYSICS	1 m	1 911	1 157	30/10/2011 16:19:15	30/10/2011 16:20:42	13	21.97	LHC11f	Yes	PHYSICS_1	160	13.30	C
	165745	PHYSICS	5 m	25 896	41 002	30/10/2011 16:08:48	30/10/2011 16:13:18	13	95.91	LHC11f	Yes	PHYSICS_1	160	151.86	C
	165744	PHYSICS	21 m	62 833	76 038	30/10/2011 15:38:12	30/10/2011 15:59:29	13	49.20	LHC11f	Yes	PHYSICS_1	160	59.54	C
	165743	PHYSICS	1 m	1 867	1 405	30/10/2011 15:26:33	30/10/2011 15:27:52	12	23.63	LHC11f	Yes	PHYSICS_1	155	17.78	C
	165742	PHYSICS	1 m	1 904	1 401	30/10/2011 15:21:34	30/10/2011 15:22:55	12	23.51	LHC11f	Yes	PHYSICS_1	155	17.30	C
	165741	PHYSICS	11 m	70 106	84 535	30/10/2011 15:04:22	30/10/2011 15:15:27	13	105.42	LHC11f	Yes	PHYSICS_1	160	127.12	C
	165740	PHYSICS	10 m	61 760	74 673	30/10/2011 14:43:42	30/10/2011 14:53:32	11	104.68	LHC11f	Yes	PHYSICS_1	131	126.56	A
	165738	PHYSICS	1 m	1 494	889	30/10/2011 14:26:37	30/10/2011 14:28:00	11	18.00	LHC11f	Yes	PHYSICS_1	131	10.71	A
	165737	PHYSICS	1 m	655	5	30/10/2011 14:20:45	30/10/2011 14:22:02	11	8.51	LHC11f	Yes	PHYSICS_1	131	0.06	A
	165735	PHYSICS	1 m	1 414	757	30/10/2011 14:16:24	30/10/2011 14:17:46	11	17.24	LHC11f	Yes	PHYSICS_1	131	9.23	A
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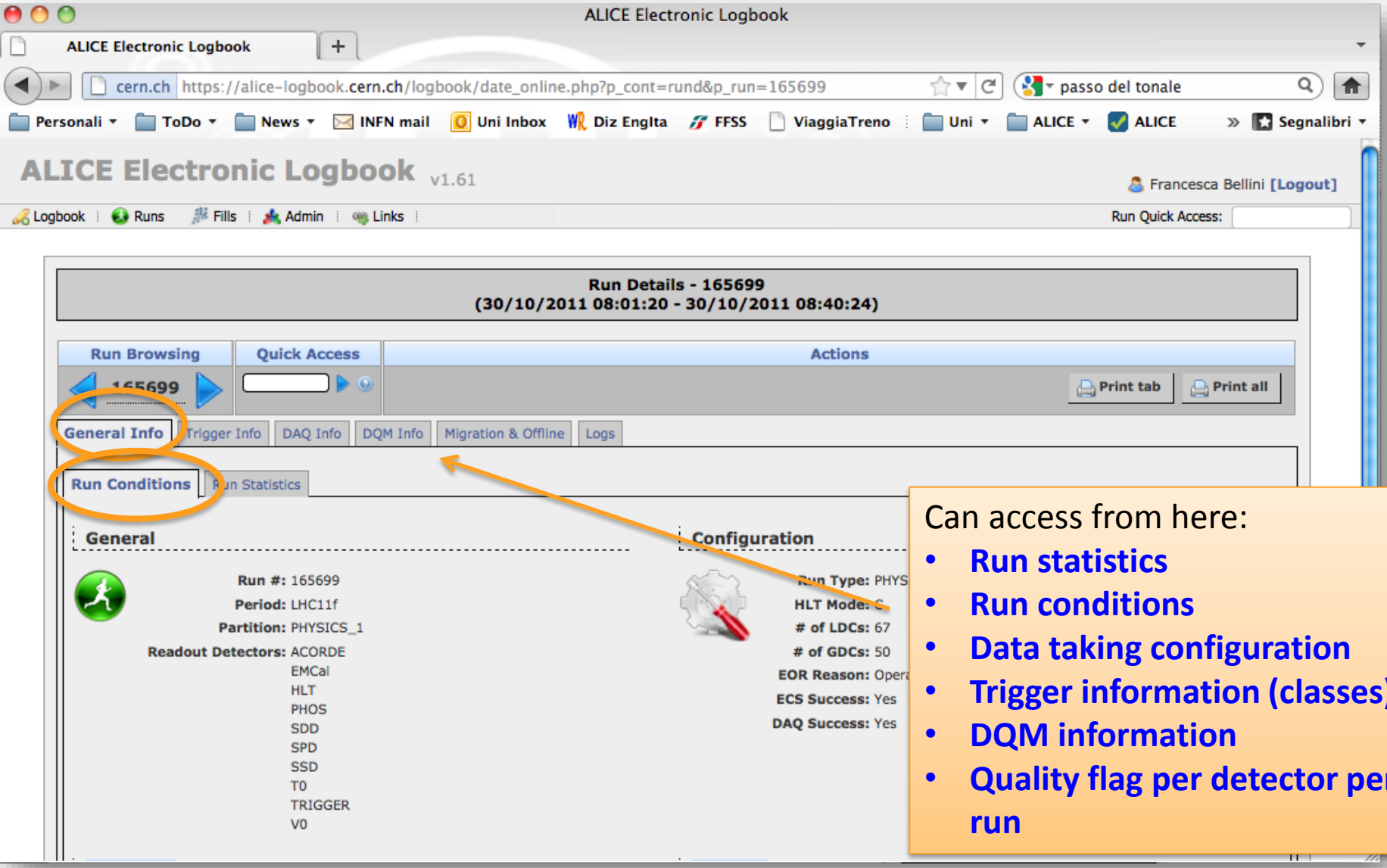
	165731	PHYSICS	11 m	105 721	104 436	30/10/2011 13:26:40	30/10/2011 13:37:32	10	162.15	LHC11f	No data	PHYSICS_1	67	160.18	C

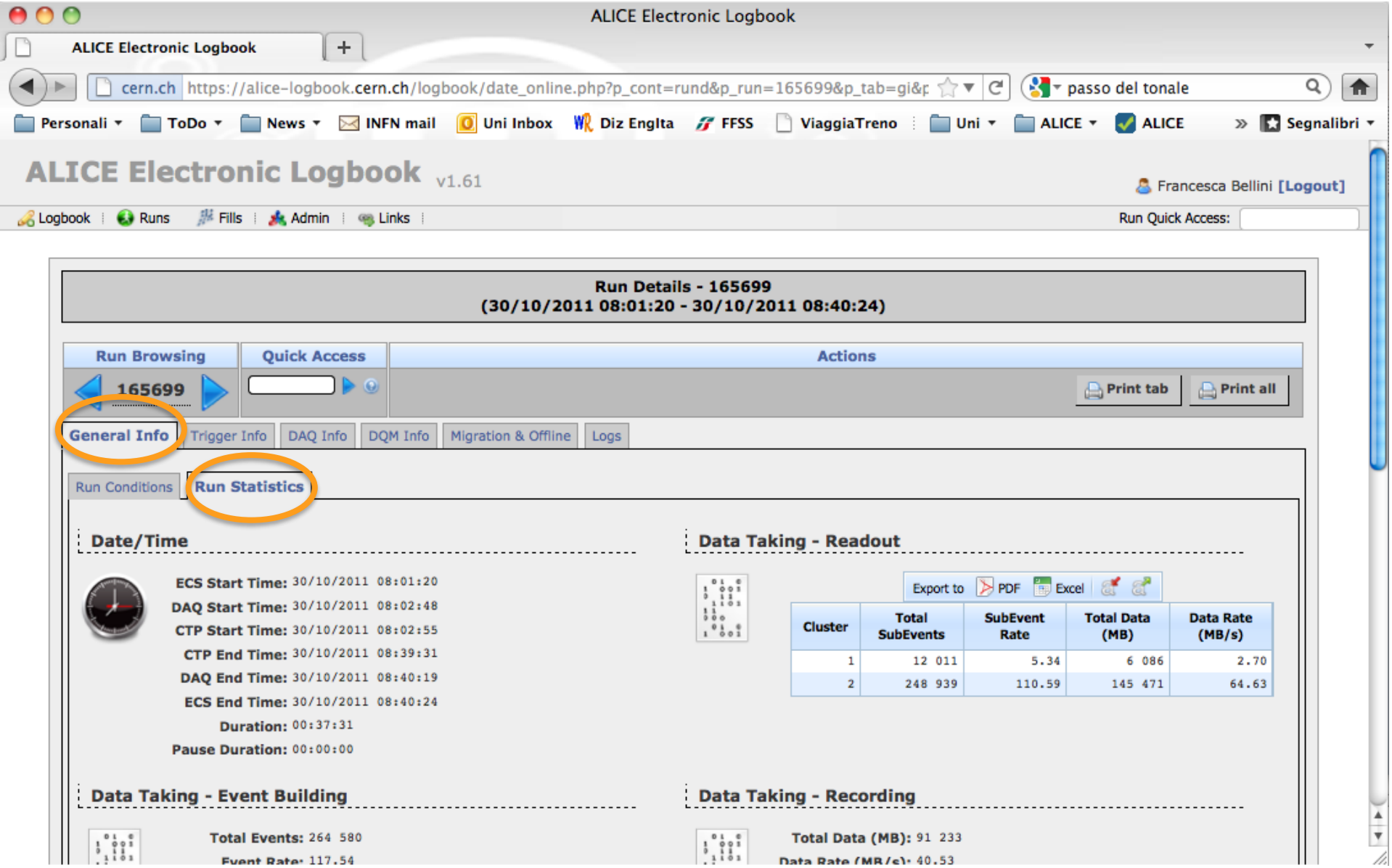
Retrieving run information



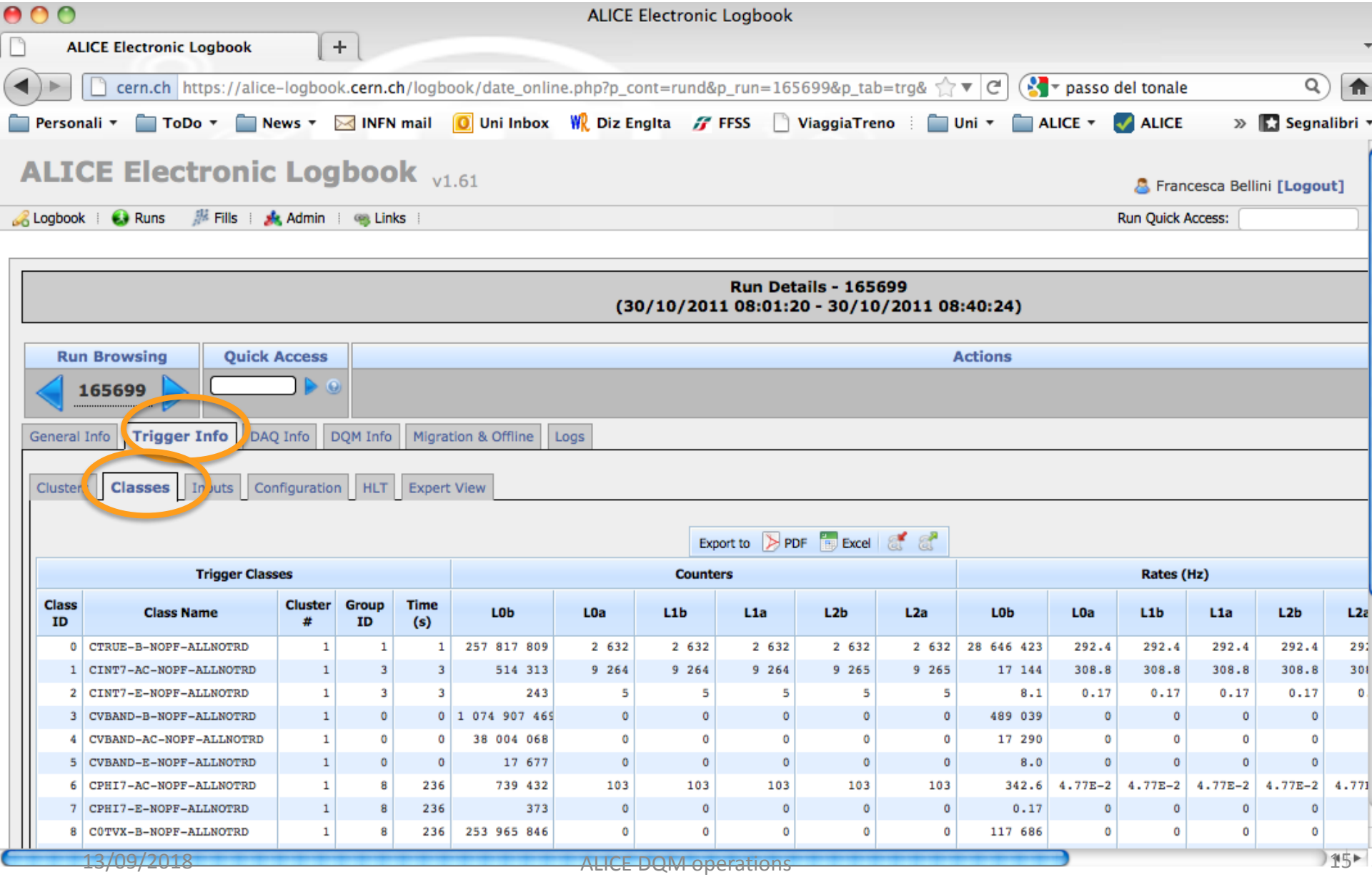
Can access from here:

- **Run statistics**
- **Run conditions**
- **Data taking configuration**
- **Trigger information (classes)**
- **DQM information**
- **Quality flag per detector per run**

Retrieving run statistics

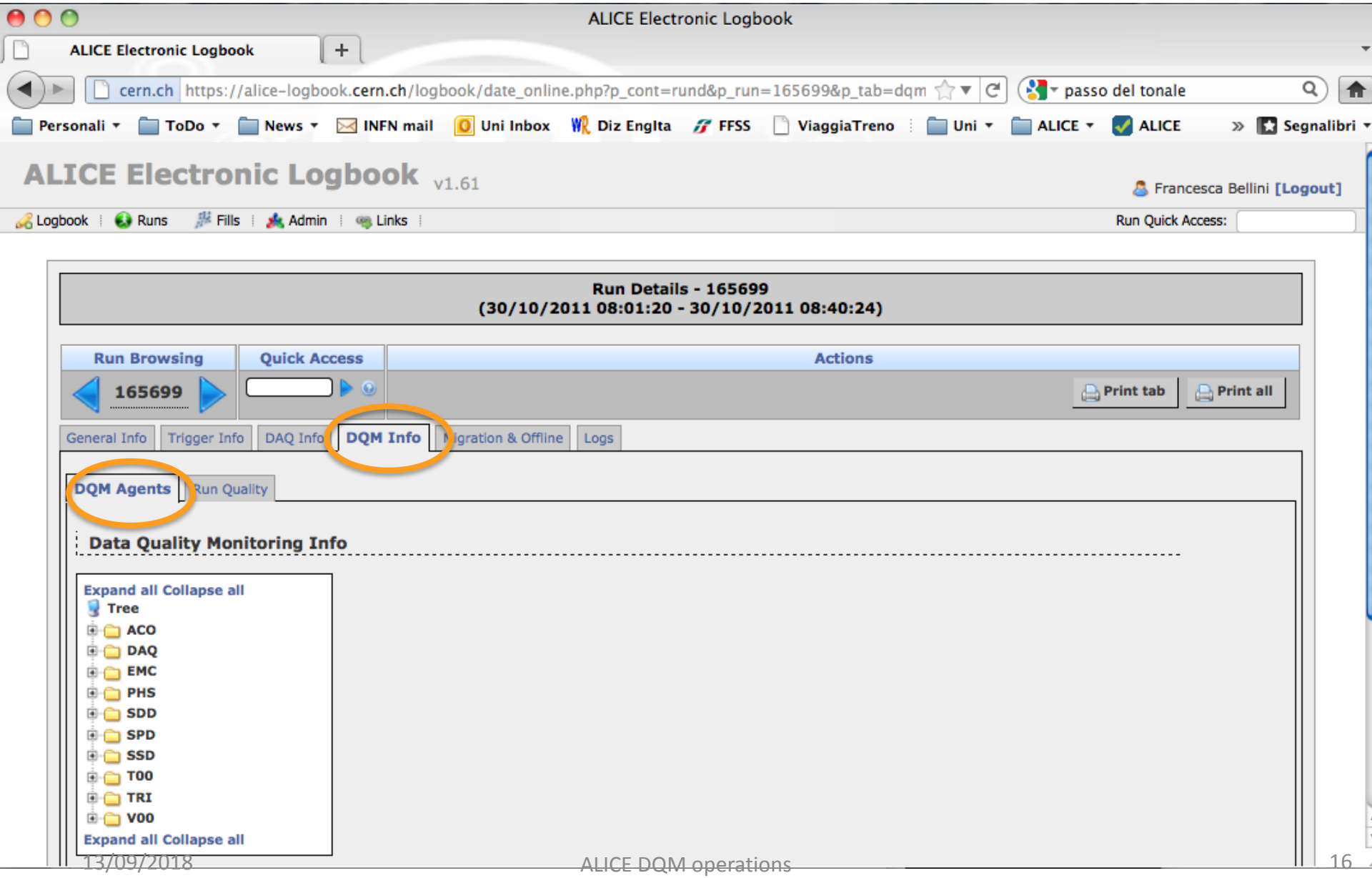


Retrieving trigger information



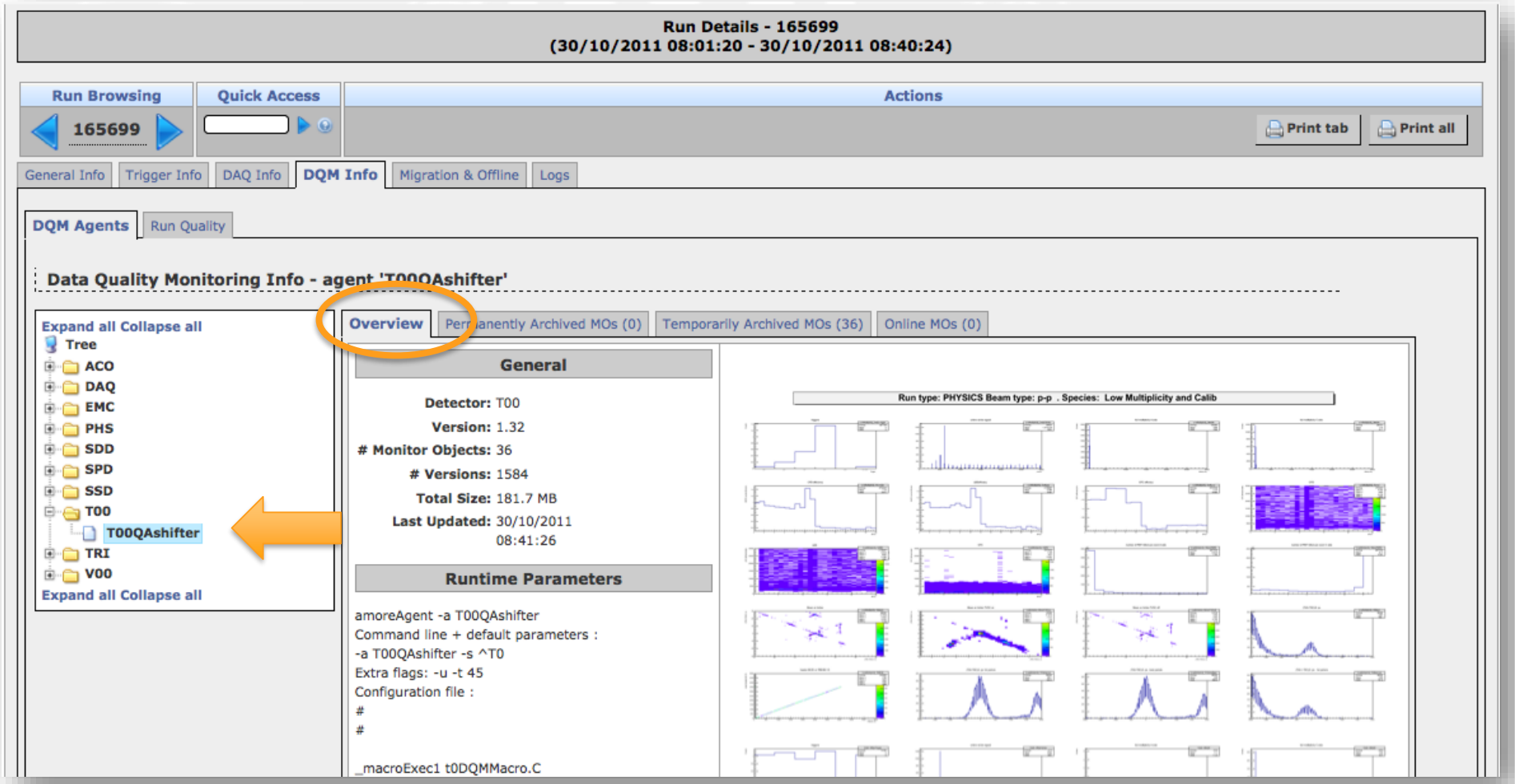
Trigger Classes					Counters						Rates (Hz)					
Class ID	Class Name	Cluster #	Group ID	Time (s)	L0b	L0a	L1b	L1a	L2b	L2a	L0b	L0a	L1b	L1a	L2b	L2a
0	CTRUE-B-NOPF-ALLNOTRD	1	1	1	257 817 809	2 632	2 632	2 632	2 632	2 632	28 646 423	292.4	292.4	292.4	292.4	292
1	CINT7-AC-NOPF-ALLNOTRD	1	3	3	514 313	9 264	9 264	9 264	9 265	9 265	17 144	308.8	308.8	308.8	308.8	308
2	CINT7-E-NOPF-ALLNOTRD	1	3	3	243	5	5	5	5	5	8.1	0.17	0.17	0.17	0.17	0
3	CVBAND-B-NOPF-ALLNOTRD	1	0	0	1 074 907 469	0	0	0	0	0	489 039	0	0	0	0	
4	CVBAND-AC-NOPF-ALLNOTRD	1	0	0	38 004 068	0	0	0	0	0	17 290	0	0	0	0	
5	CVBAND-E-NOPF-ALLNOTRD	1	0	0	17 677	0	0	0	0	0	8.0	0	0	0	0	
6	CPHI7-AC-NOPF-ALLNOTRD	1	8	236	739 432	103	103	103	103	103	342.6	4.77E-2	4.77E-2	4.77E-2	4.77E-2	4.77
7	CPHI7-E-NOPF-ALLNOTRD	1	8	236	373	0	0	0	0	0	0.17	0	0	0	0	
8	C0TVX-B-NOPF-ALLNOTRD	1	8	236	253 965 846	0	0	0	0	0	117 686	0	0	0	0	

DQM Info


ALICE Electronic Logbook
ALICE Electronic Logbook
cern.ch https://alice-logbook.cern.ch/logbook/date_online.php?p_cont=rund&p_run=165699&p_tab=dqm
passo del tonale
Personali ToDo News INFN mail Uni Inbox Diz Englta FFSS ViaggiaTreno Uni ALICE ALICE Segnalibri
ALICE Electronic Logbook v1.61
Francesca Bellini [Logout]
Logbook Runs Fills Admin Links
Run Quick Access:
Run Details - 165699
(30/10/2011 08:01:20 - 30/10/2011 08:40:24)
Run Browsing
Quick Access
Actions
165699
Print tab
Print all
General Info
Trigger Info
DAQ Info
DQM Info
Migration & Offline
Logs
DQM Agents
Run Quality
Data Quality Monitoring Info
Expand all Collapse all
Tree
ACO
DAQ
EMC
PHS
SDD
SPD
SSD
T00
TRI
V00
Expand all Collapse all

DQM Info

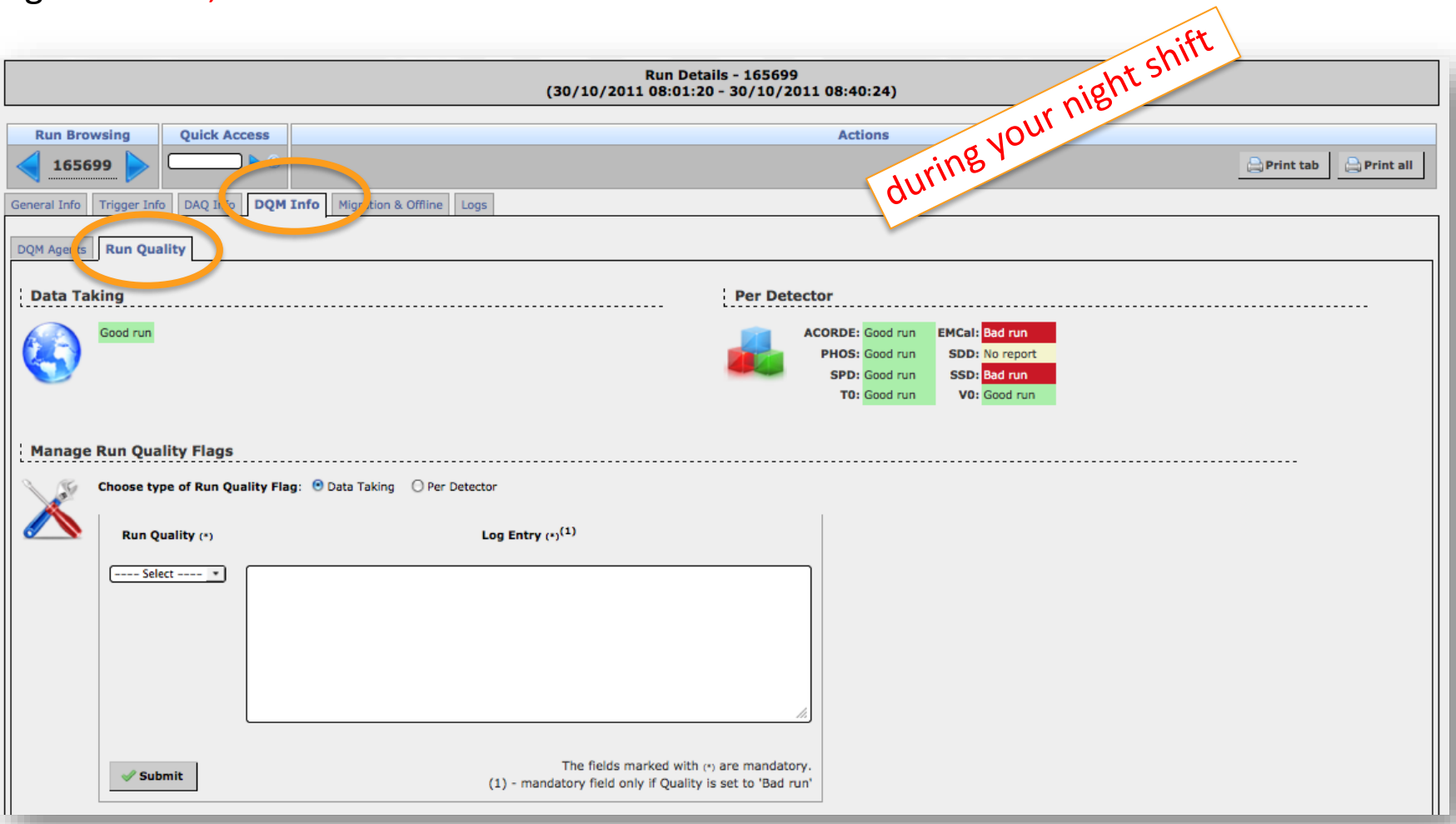
Go to the **DQMInfo > DQM agents** tab
Select the desired detector and agent
Look at the summary image from the overview tab



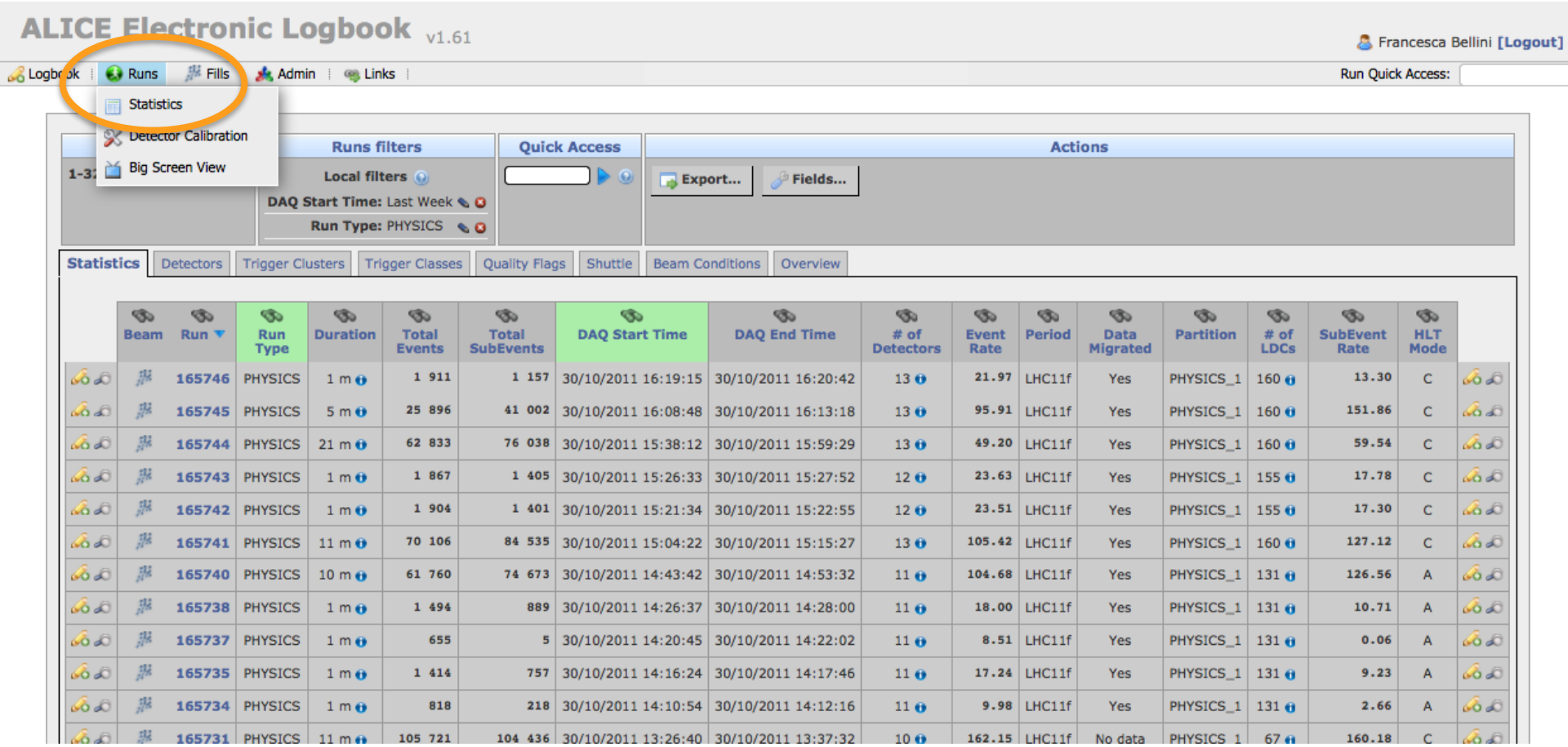
Check Run quality flag per detector

Go to the **DQMInfo > Run quality** tab

Check if the detector experts have set the quality flags for the runs taken before 24h ago → If not, send them an email!



Retrieve old runs / apply filters



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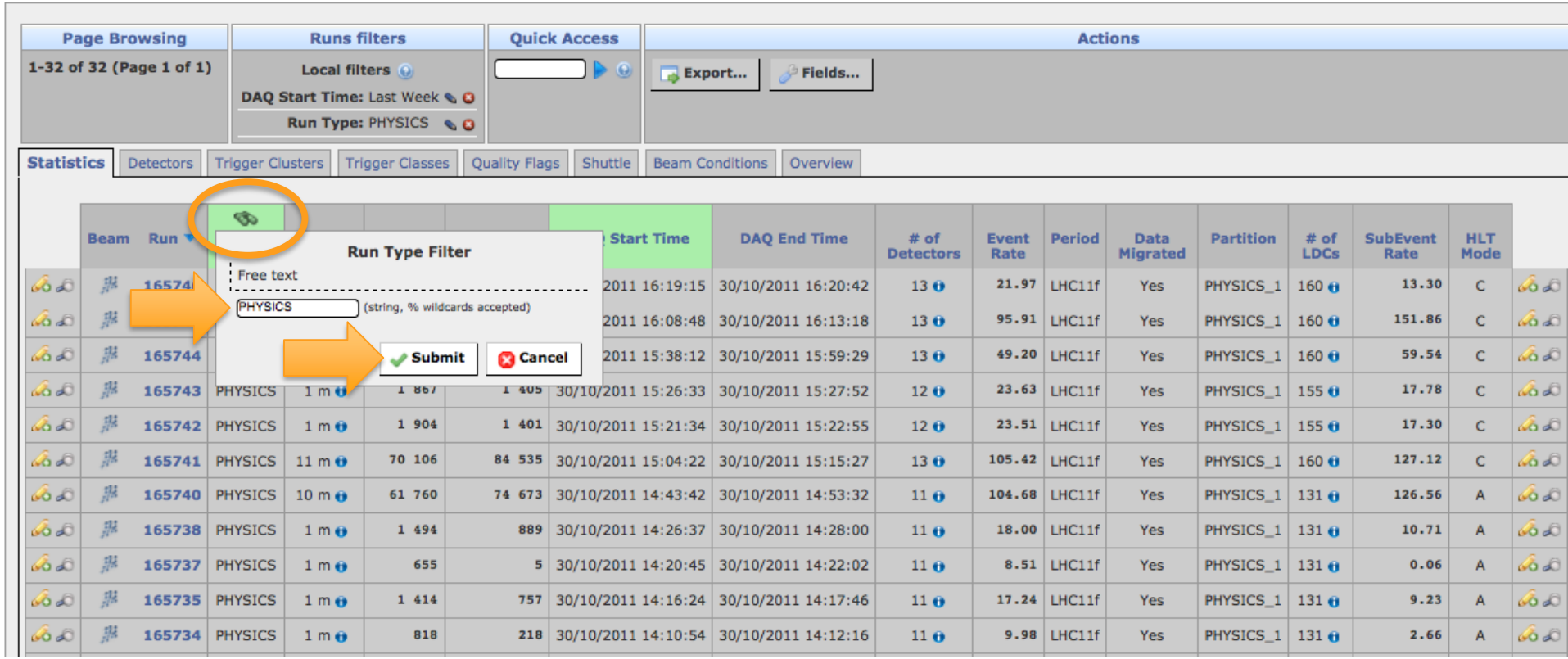
Retrieve old runs / apply filters



Beam	Run					Start Time	DAQ End Time	# of Detectors	Event Rate	Period	Data Migrated	Partition	# of LDCs	SubEvent Rate	HLT Mode
	16574					2011 16:19:15	30/10/2011 16:20:42	13	21.97	LHC11f	Yes	PHYSICS_1	160	13.30	C
						2011 16:08:48	30/10/2011 16:13:18	13	95.91	LHC11f	Yes	PHYSICS_1	160	151.86	C
	165744					2011 15:38:12	30/10/2011 15:59:29	13	49.20	LHC11f	Yes	PHYSICS_1	160	59.54	C
	165743	PHYSICS	1 m	1 867	1 405	30/10/2011 15:26:33	30/10/2011 15:27:52	12	23.63	LHC11f	Yes	PHYSICS_1	155	17.78	C
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	165738	PHYSICS	1 m	1 494	889	30/10/2011 14:26:37	30/10/2011 14:28:00	11	18.00	LHC11f	Yes	PHYSICS_1	131	10.71	A
	165737	PHYSICS	1 m	655	5	30/10/2011 14:20:45	30/10/2011 14:22:02	11	8.51	LHC11f	Yes	PHYSICS_1	131	0.06	A
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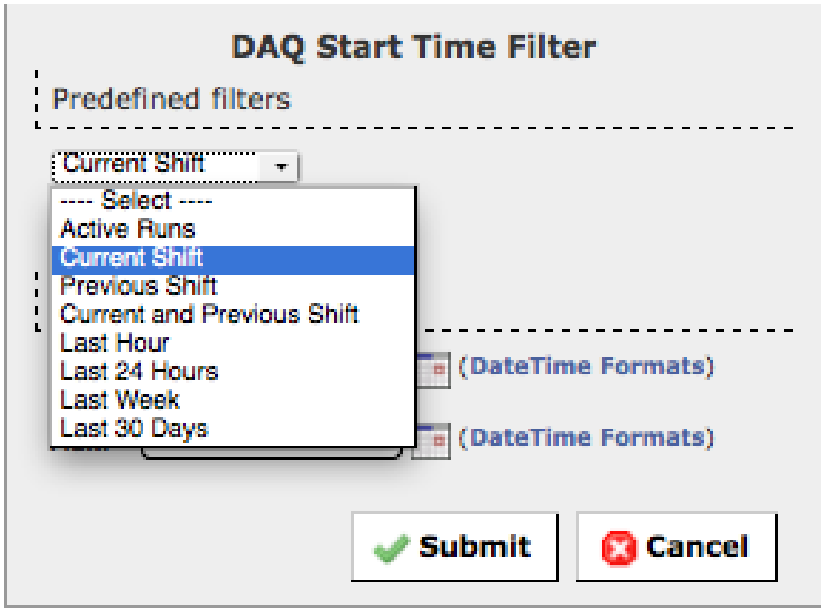
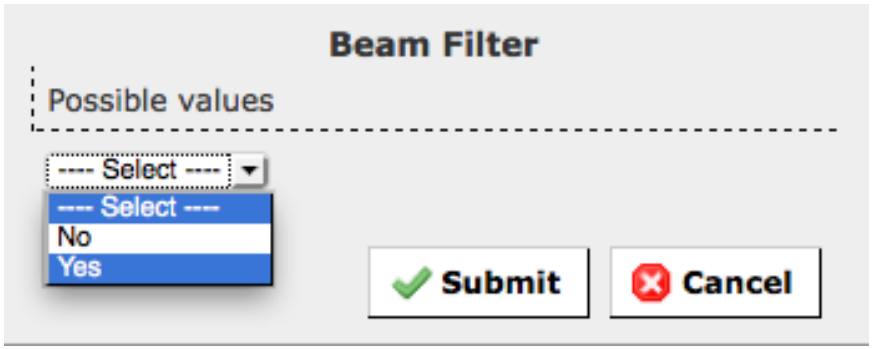
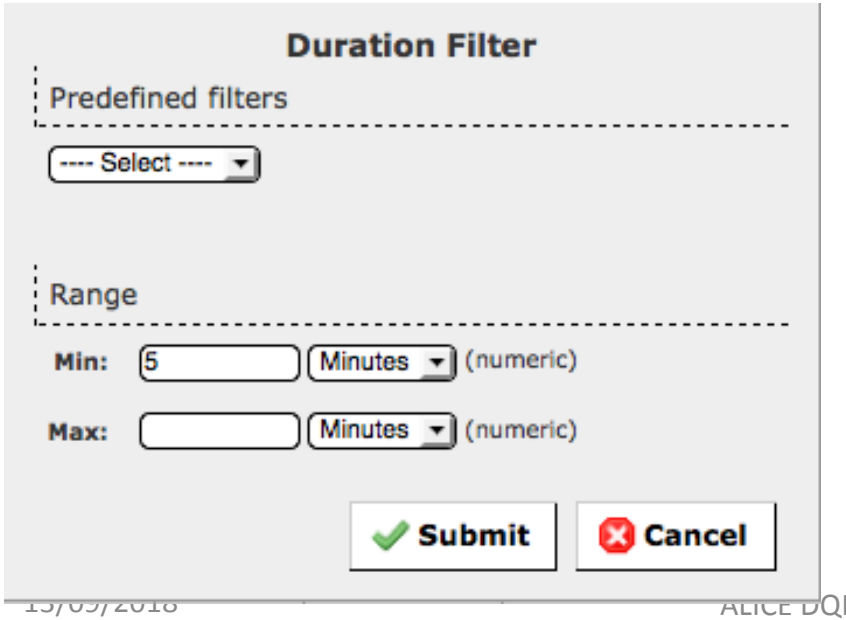
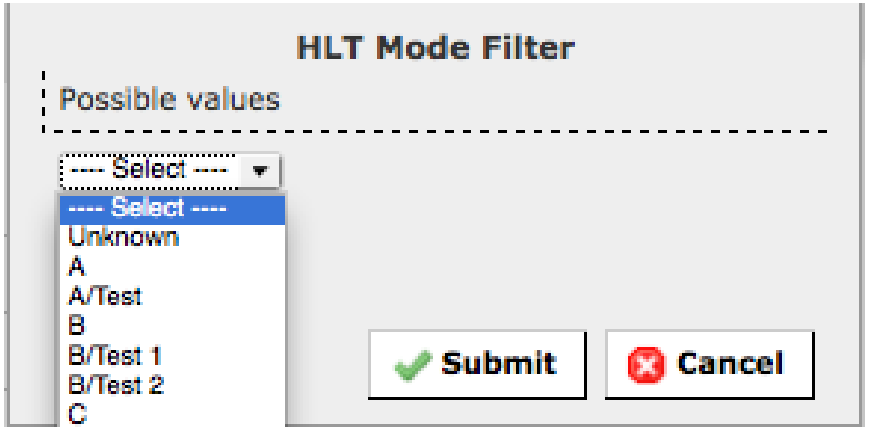
	165734	PHYSICS	1 m	818	218	30/10/2011 14:10:54	30/10/2011 14:12:16	11	9.98	LHC11f	Yes	PHYSICS_1	131	2.66	A

Example of most common filters









Introduction to DQM shifter's operations

- Additional information -

Event Species

Technical Runs

How to train new shifters

How to update the blackboard

Technical runs

- Dedicated Twiki page (and Twiki page of each single system)

  https://twiki.cern.ch/twiki/bin/viewauth/ALICE/TechnicalRuns

- From the DAQ point of view a technical run is the same as a physics run.
- From the **trigger** point of view, the trigger in a technical run is simulated, it does not come from "real" physics events.
- During technical runs the **status** of a detector can be either BEAM_TUNING or READY (check the DCS monitoring).

- The DQM shifter should check in the Twiki:
  - which detectors have to be monitored
  - under which event specie summary image appears in the logbook.

Technical runs – Twiki page

https://twiki.cern.ch/twiki/bin/view/ALICE/TechnicalRuns

TECHNICAL RUNS

What is a technical run? Differences from a PHYSICS run

From the DAQ point of view a technical run is the same as a physics run. From the trigger point of view, the trigger in a technical run is simulated, it does not come from "real" physics events.

During technical runs the status of a detector can be either BEAM_TUNING or READY, depending from the detector. The shifter can check the status of the detectors from the DCS big screen in ACR or the DCS monitoring web page (also linked to from the ALICE Run Coordination web page) here:

http://alicedcs.web.cern.ch/AliceDCS/monitoring/main.aspx

Each detector specifies therefore what should be monitored during technical runs and what should be expected from the plots, taking into account the status of the detector itself. The DQM shifter should check in the following session which detectors have to be monitored and under which event specie the overview of the plots should appear in the ALICE logbook.

What to monitor during technical runs

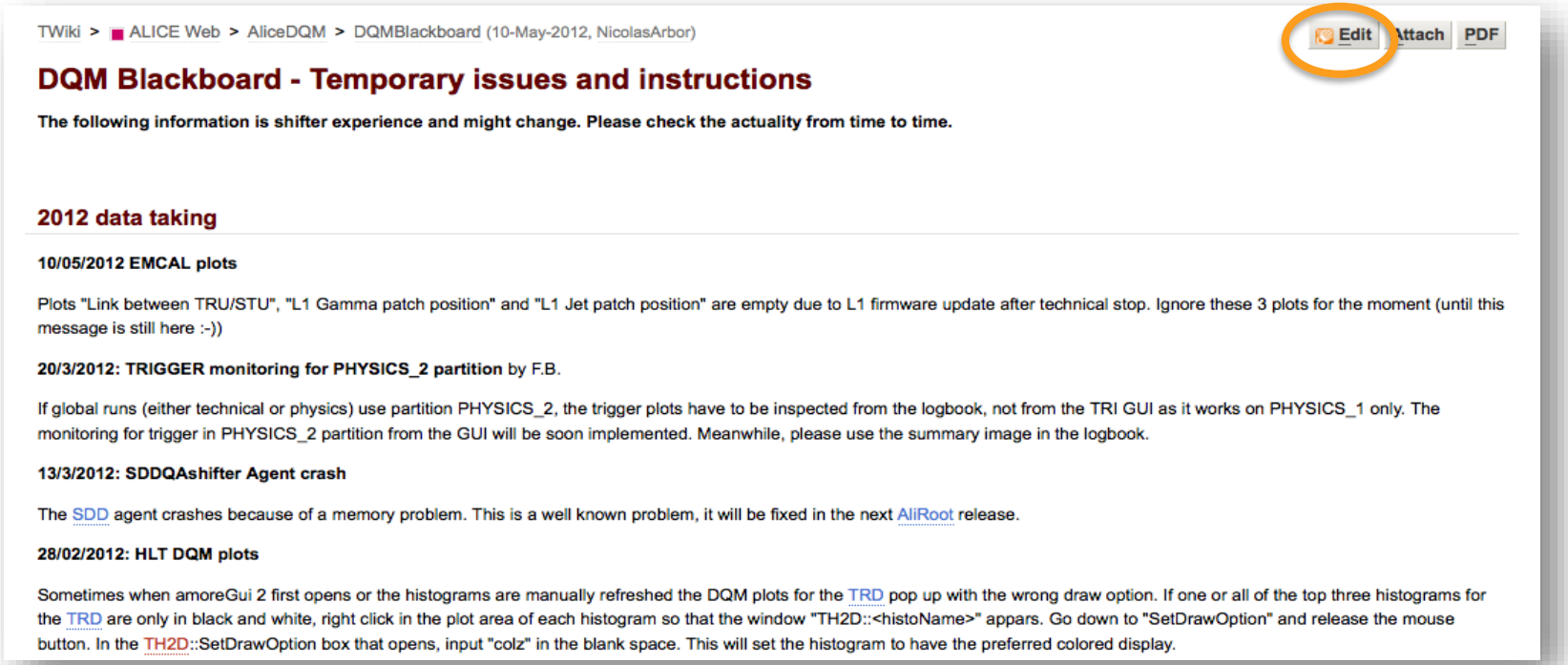
The detectors that asked to be monitored during technical runs and for which instructions are present are the following:

Detector	Monitor?
ACORDE	no
DAQ	yes
EMCAL	no
FMD	yes
HMPID	yes

Modify Twiki blackboard

https://twiki.cern.ch/twiki/bin/viewauth/ALICE/DQMBlackboard

1. Access the page
2. Edit it!
3. Scroll down in the editor until you find the blackboard section
4. Add your changes (**send an email to daniele.de.gruttola@cern.ch or elisa.meninno@cern.ch**)
5. Save!



TWiki > ALICE Web > AliceDQM > DQMBlackboard (10-May-2012, NicolasArbor)

Edit | Attach | PDF

DQM Blackboard - Temporary issues and instructions

The following information is shifter experience and might change. Please check the actuality from time to time.

2012 data taking

10/05/2012 EMCAL plots

Plots "Link between TRU/STU", "L1 Gamma patch position" and "L1 Jet patch position" are empty due to L1 firmware update after technical stop. Ignore these 3 plots for the moment (until this message is still here :-))

20/3/2012: TRIGGER monitoring for PHYSICS_2 partition by F.B.

If global runs (either technical or physics) use partition PHYSICS_2, the trigger plots have to be inspected from the logbook, not from the TRI GUI as it works on PHYSICS_1 only. The monitoring for trigger in PHYSICS_2 partition from the GUI will be soon implemented. Meanwhile, please use the summary image in the logbook.

13/3/2012: SDDQAshifter Agent crash

The SDD agent crashes because of a memory problem. This is a well known problem, it will be fixed in the next AliRoot release.

28/02/2012: HLT DQM plots

Sometimes when amoreGui 2 first opens or the histograms are manually refreshed the DQM plots for the TRD pop up with the wrong draw option. If one or all of the top three histograms for the TRD are only in black and white, right click in the plot area of each histogram so that the window "TH2D::<histoName>" appars. Go down to "SetDrawOption" and release the mouse button. In the TH2D::SetDrawOption box that opens, input "colz" in the blank space. This will set the histogram to have the preferred colored display.

How to train new shifters

- Check out trainers roadmap on the Twiki

  https://twiki.cern.ch/twiki/bin/view/AliceEVE/DQMTraining

- The trainees will follow you during your shift

- Explain them the basic operations and troubleshooting

- Make sure that they read the Twiki

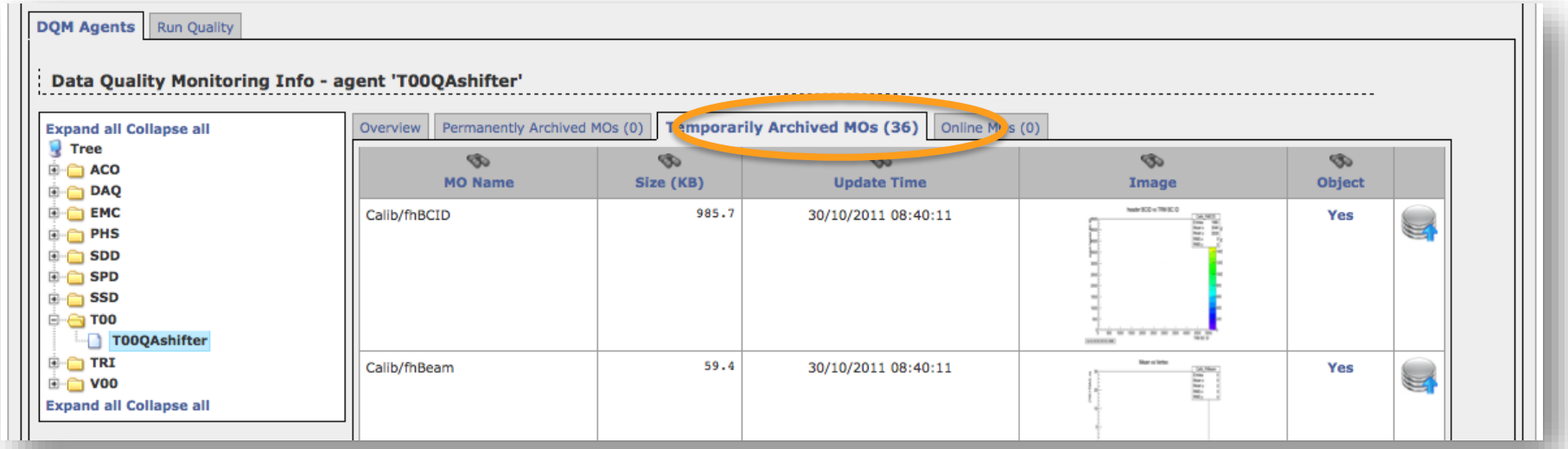
Questions?

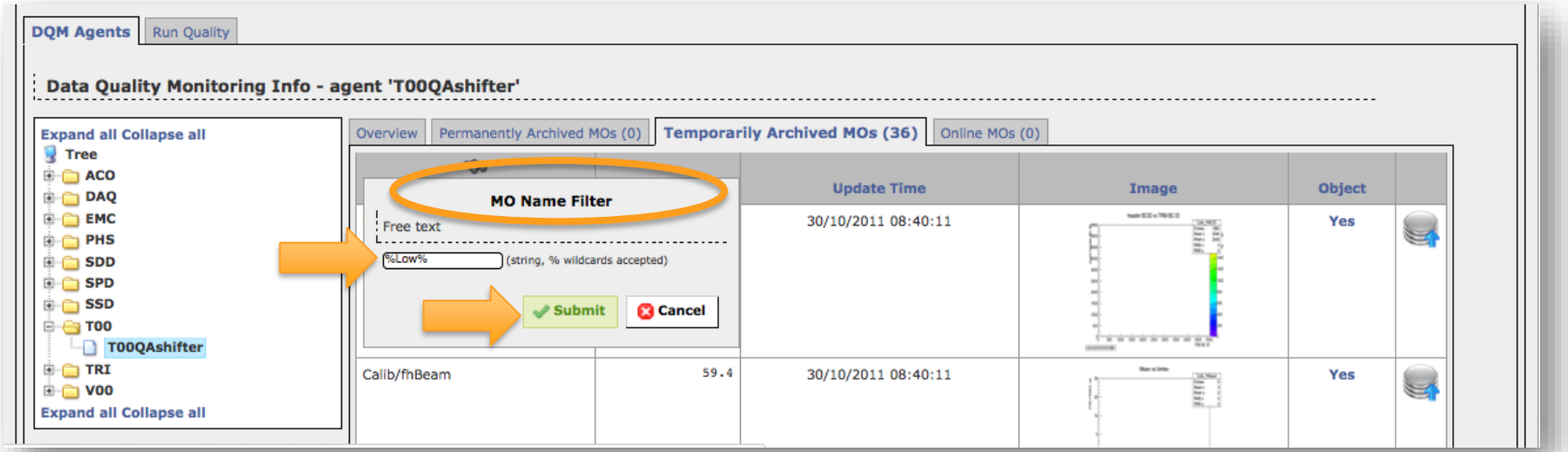
Thank you for your attention…
See you in ARC!

backup

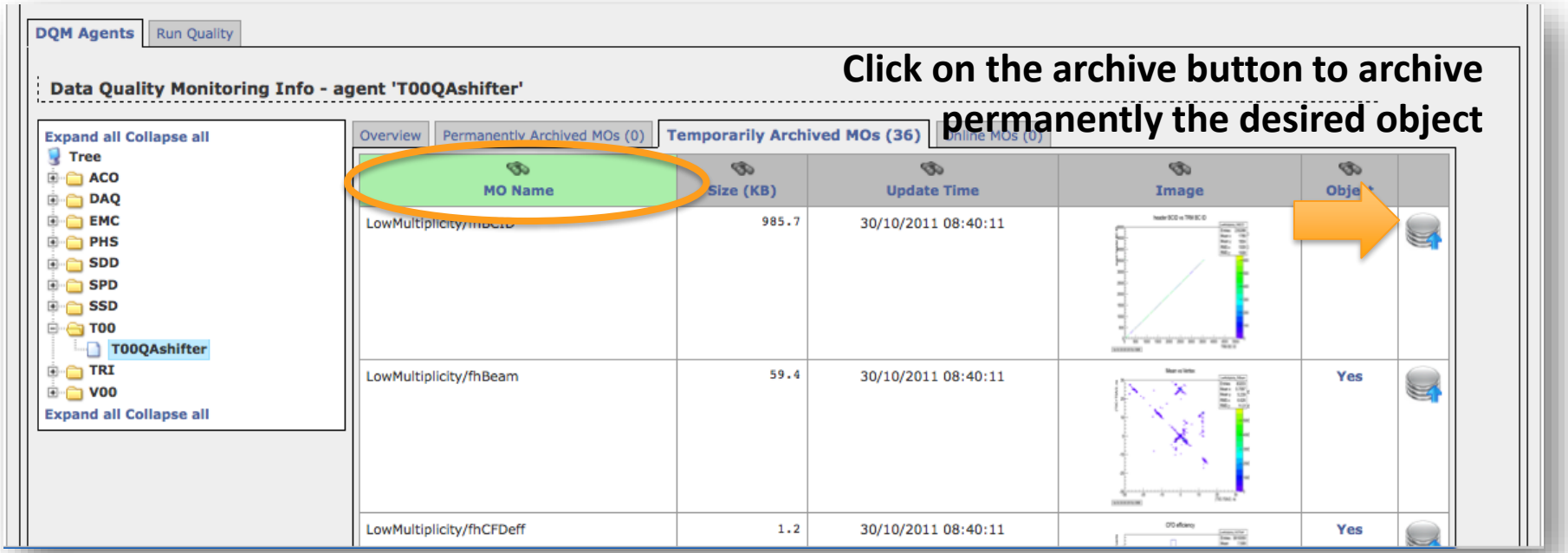
Retrieve and archive monitoring objects

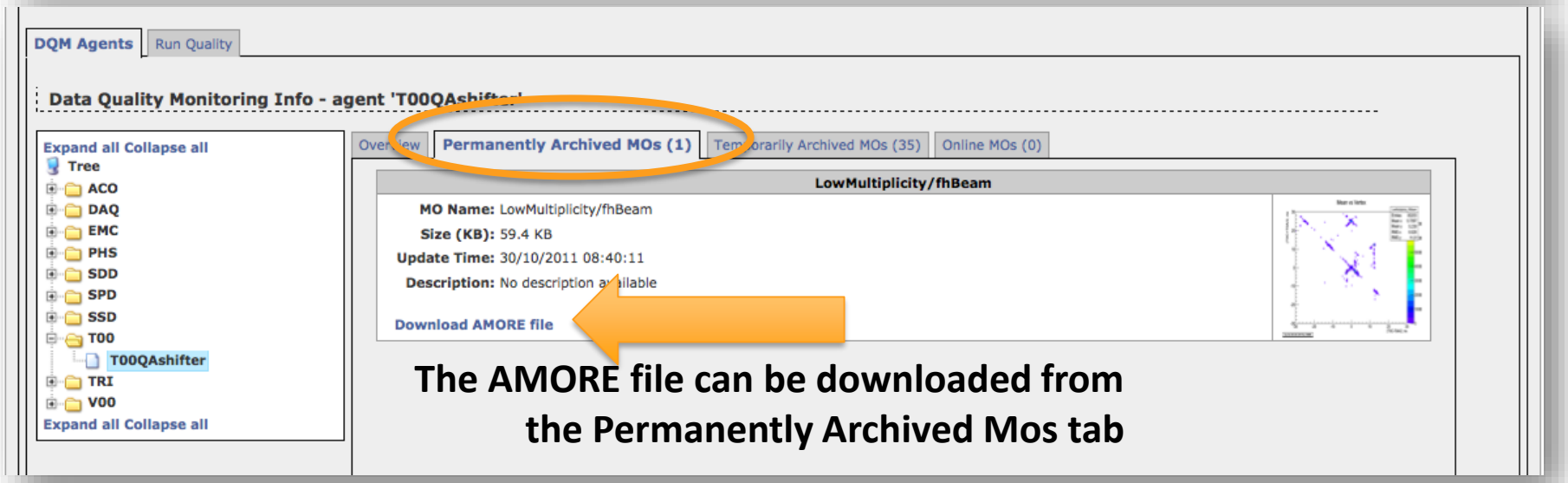
Go to the **DQMInfo > DQM agents** tab
Select the desired detector and agent
Look at Temporarily archived Mos by filtering for the name of the histogram





Retrieve and archive monitoring objects



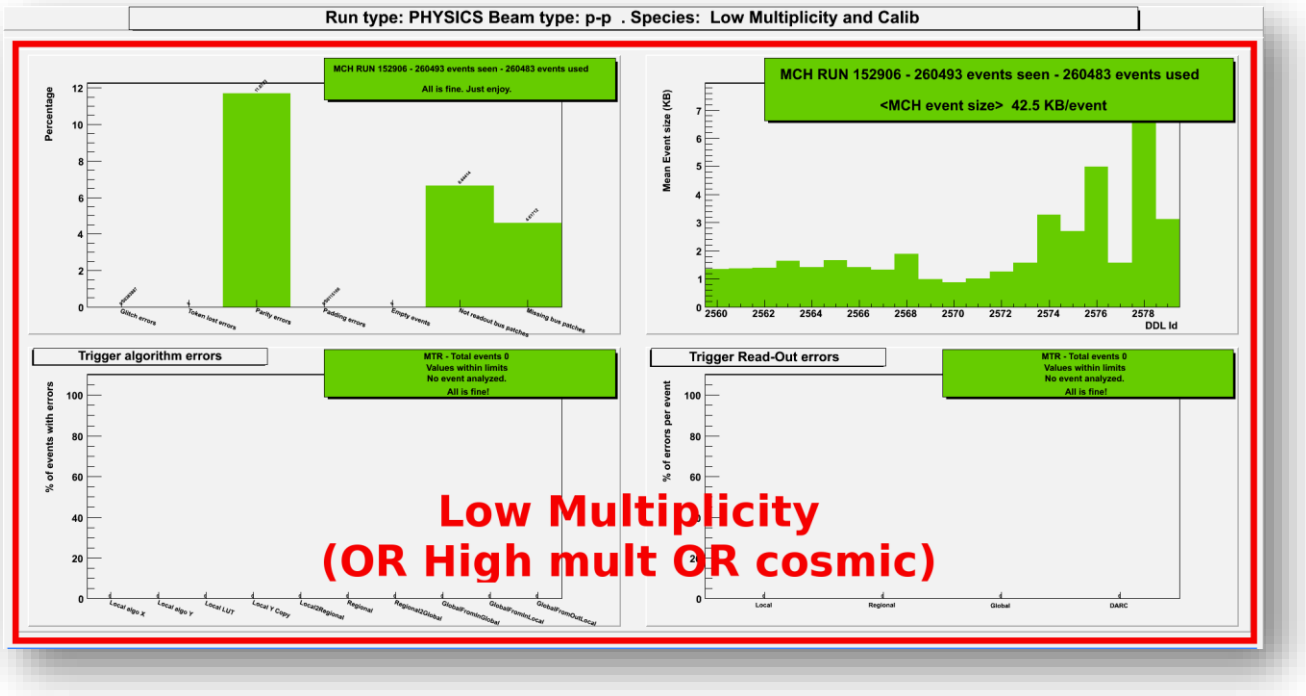


Event species

- **The shifter will inspect plots for the "default" event species**, which is computed online for each event taking into account
  - Run type (calibration, physics, …)
  - event type (calibration or physics)
  - Beam type (pp, PbPb, cosmics,…)
- Unless specified in the detector's Twiki, you have to **use the "default" species when refreshing manually the plots**
- The four possible event species are:
  - **Calibration**: calibration events
  - **Cosmic**: filled during cosmic runs
  - **LowMultiplicity**: currently filled in p-p runs
  - **HighMultiplicity**: currently filled in PbPb runs
- Only plots for the currently filled species are saved in the Logbook summary image

Event specie in the logbook summary image

If filling only one event species at the time



Notice that computed event species name appears in the summary image's header

Event specie in the logbook summary image

If filling only two event species at the time