Instruction for PHOS On Call

Version Y.*SIBIRYAK, S. NIKOLAEV - 22.08.2011*

The PHOS On Call should be reachable by phone 24 h per day. He/she should be able to reach Point 2 within 30 min after a call. People who are On Call should be registered as "phos experts" in PVSS. This is necessary for being able to turn on and off the HV and LV. Here are some points to follow:

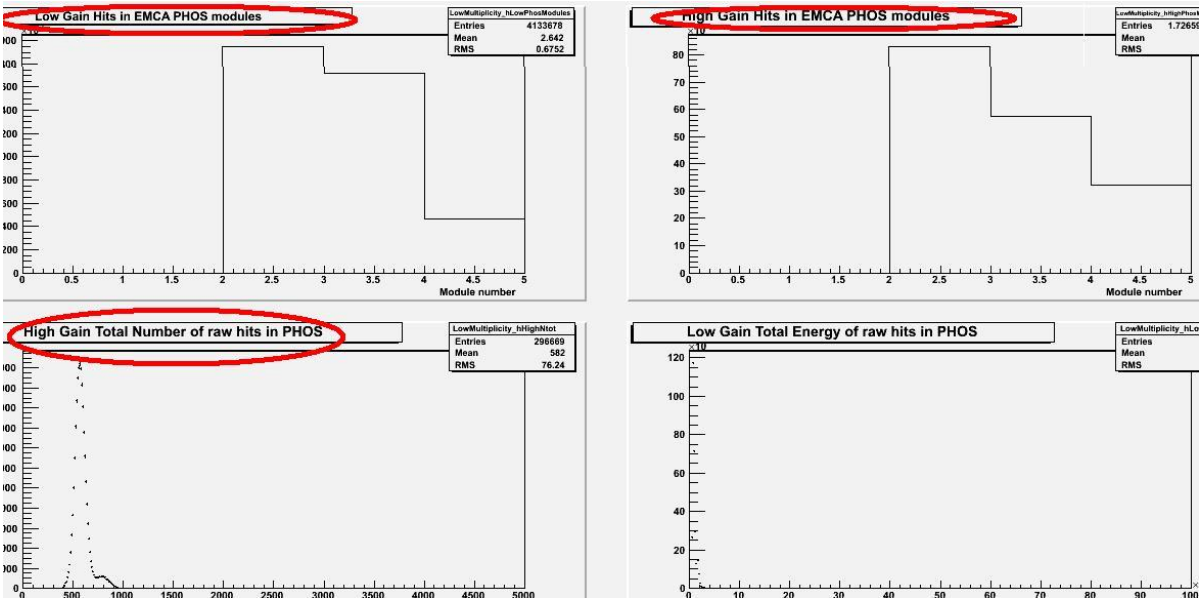
1. Be aware of what is going on at Point 2 and what the plans are for PHOS. Follow the e-mails on the **alice-p2info** mailing list, stay in contact with the PHOS Run Coordinator and the ALICE shift leader etc.

2. Make sure that PHOS is **READY** to take part in global runs when it should.

3. Monitor the quality of the data. Use the logbook to check the PHOS **event size**. It can be found by clicking on a run in the logbook and then clicking on "**Run Statistics**" The event size (in pp collisions) should be between 11 and 17 kByte per event. Deviations from this indicate problems. Either noise (too large event size) or that some part of PHOS are not read out (too small event size). One can see the amount of data recorded by each LDC by clicking on "**LDC statistics**". Also check the **DQM plots** in the logbook. These can be found by first clicking on a run and then clicking DQM. An example plot is shown below. There should be entries for all 3 modules (2-4) in the first two histograms. The number of hits is normally largest in Module 2 and smallest in Module 4. The following 6 plots should all have entries. The mean and RMS should be compatible with the example below. The DQM plots are monitored online by the DQM shifter, but an extra cross check should be done. These checks should be done at least once per day when there is Physics data taking. There are also **QA plots in HLT** that can be consulted during a run. The **Busy Time** can be seen **during of Run only** on http://alidcscom188.cern.ch/ from **alidcscom001** (from outside of CERN through **cernts.cern.ch**) on "Global run BUSY status" page. For PHOS busy time should be ~**1msec**.

4. Take PEDESTAL and **LED** runs when needed.

5. It is recommended that each On Call subscribes to the **phos-alarm@cern.ch** mailing list. This can be done from here **http://www.cern.ch/groups**. You will then get an e-mail when a software or hardware interlock is triggered. The samples of the DQM Plots for PHOS from the logbook for a good pp run (August 2011):



6. It is recommended that On Call shifter make PHOS monitoring by the following Web-shape Check List (updated in August-2011):
Each point of the list should be checked carefully one by one and marked by "OK" or actual values in case of problems.

PHOS check list

On-call shifter				Date			
C.Plant (level ≥~68%,Ready Int. √). Cool. water pr.~550	Alarms, Interlocks	Busy time (~ 1msec)	AVG EVT size (~11 – 17kb)	LDC stat. subevent/ /total~100/90/80 /50/40/45 %	DQM peak position (~500-1000)	Last PHYS-RUN with Quality Flag	RUN type
		MODULE 2		MODULE 3		MODULE 4	
Matrix temperature (03.2011 – calibration time)		-24.46; -25.01; -25.11		-27.31; -21.19		-25.04; -25.01; -25.05	
Matrix humidity (%)		43.2; 47.6; 26.9		44.8; 43.7; 35.1		39.7; 27.5	
FEE temperature (+16°C)		15.88		15.50		13.29	
FEE humidity (%)		7.7; 4.8		13.0; 0.5 (?)		6.2; 5.9	
Wiener temperature °C		Wiener 193		Wiener 191		Wiener 190	
Channel 0; 2 Channel 4; 6 Channel 8		19; 22 24; 19 24		17; 20 21; 17 21		19; 19 22; 19 21	
Wiener 195	Temper. °C	Channel 0	20	Channel 4	17	Channel 2	20
	Current (A)		15		21		13
LV current (A) Channel 0; 2 Channel 4; 6 Channel 8		23.35; 49.8 65.6; 11.9 45.6		17.9; 32.6 49.27; 7.8 39.1		25.4; 41.9 56.02; 10.22 39.6	
HV current (mA) Channel 0; 1 Channel 2; 3 Channel 4; 5 Channel 6; 7		8.11; 8.11 8.25; 8.1 8.3; 8.3 7.8; 9.4		7.94; 0 7.91; 8.2 0; 0 8.2; 8.01		0; 7.7 7.6; 7.7 7.1; 7.6 7.5; 6.7	
Comments:							

The blank Check list can be found on PHOS web site: https://aliceinfo.cern.ch/PHOS/ on the Run coordination/PHOS On-call shift page. After filling of the Check-list it should be sent to current SRC for publication on the PHOS web site.

7. Set Run Quality Flags (RQF). The appropriate manual see below.

The marking of Run Quality Flags (RQF).

The marking of a Run Quality Flag (RQF) is duty of the Oncall shifter. The RQF must be set for 24 hours after the run was stopped. The DQM shifters check the list of the runs started during the last 48 hours and call the Oncall expert if they have found a run without RQF which is older than 24 hours.

The following runs should be marked with RQF:

- Only PHYSICS runs with beam (no TECHNICAL, no STANDALONE, no COSMIC runs).
- Only runs with duration longer than 10 minutes.

How to mark RQF.

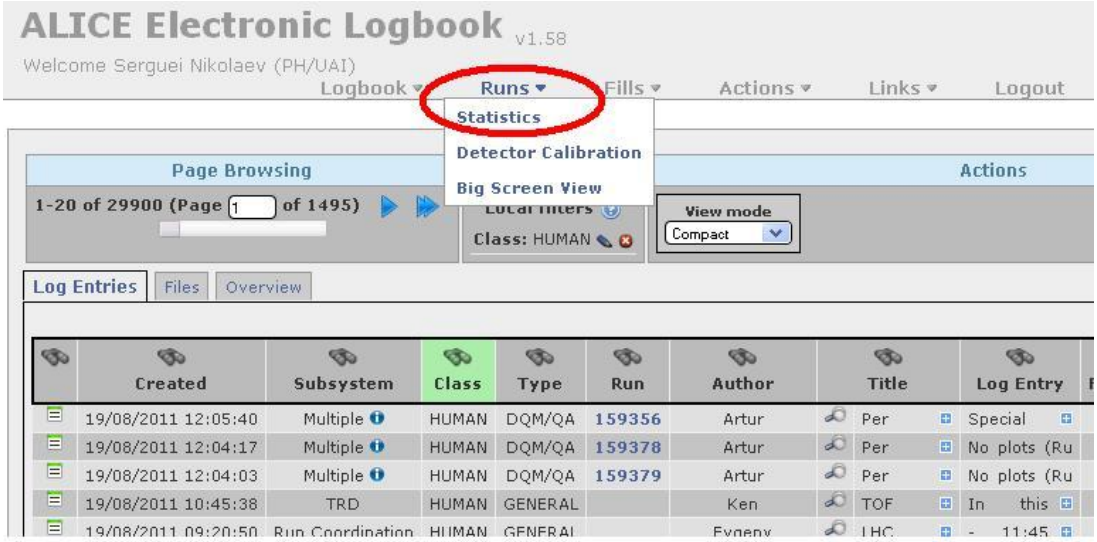
I. Set filters.

- Find out the number of the last PHYSICS Run with RQF - in the PHOS check-list of the previous day, at the cell "Last PHYS-RUN with Quality Flag".

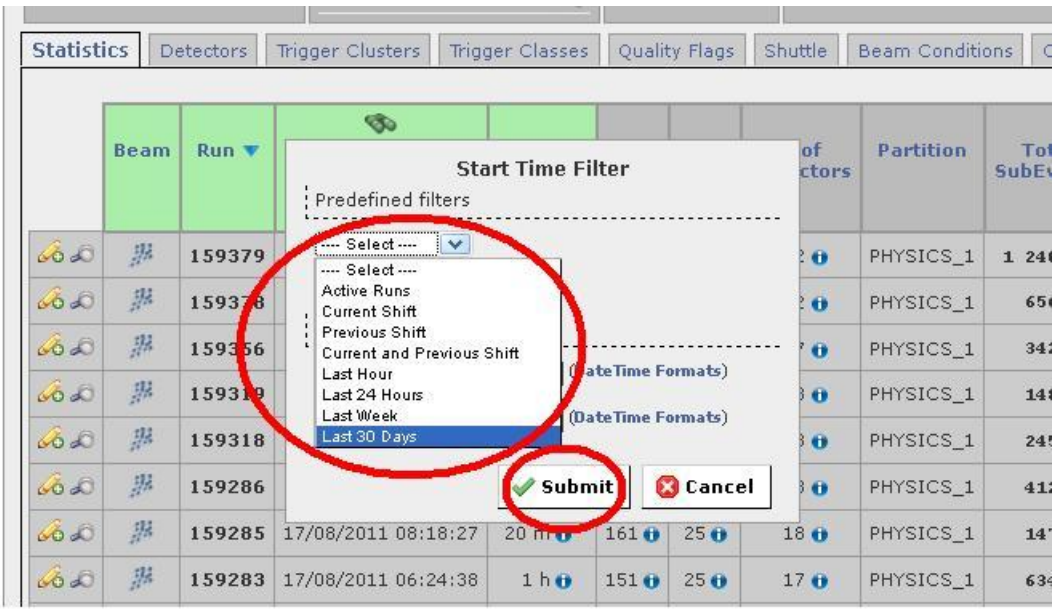
PHOS check list

On-call shifter	Sergey NIKOLAEV			Date	09.08.2011		
C.Plant (level ?~68%,Ready Int. v). Cool. water pr.~550	Alarms, Interlocks	Busy time (~ 1msec)	AVG EVT size (~11 – 17kb)	LDC stat. subevent/ /total~100/90/80 /50/40/45 %	DQM peak position (~500-1000)	Last PHYS-RUN with Quality Flag	RUN type
OK	NO	OK	16.1 kb	reasonable	615.8 double	158793	Physics_1 158777
	MODULE 2			MODULE 3		MODULE 4	

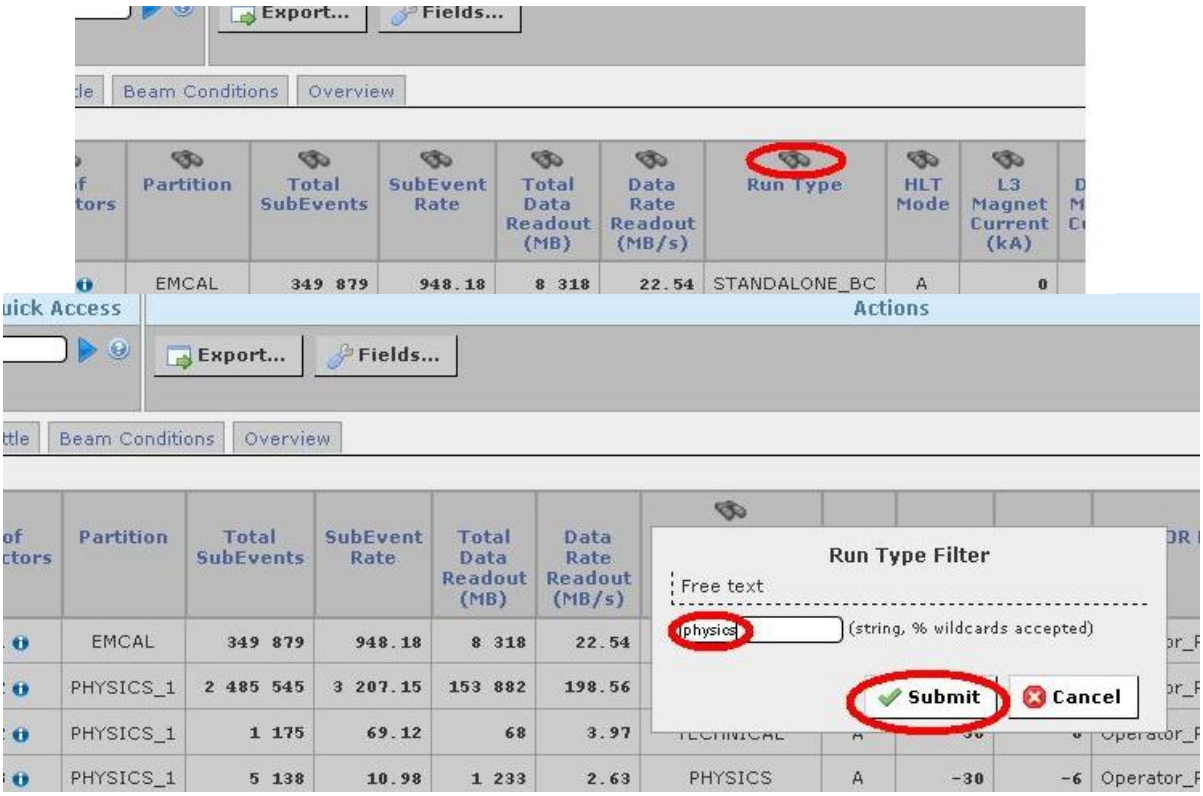
- Enter the ALICE Logbook (never use Internet Explorer). Go to "RUNS" → "Statistics".



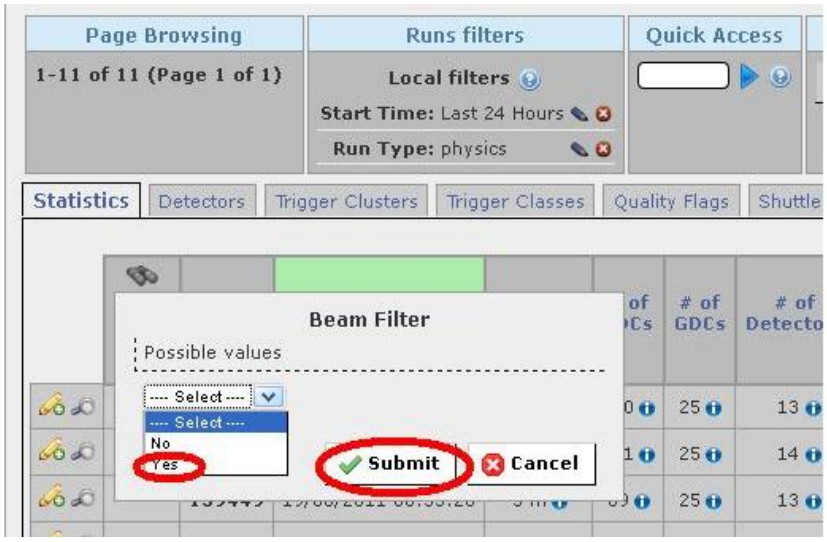
- On the column “Start Time” click on the binocular badge and select time, compared with the time of the last Run with RQF - in the field “Start Time Filter”. Then do “Submit”. To be sure – select “Last 30 days” or “Last week”.



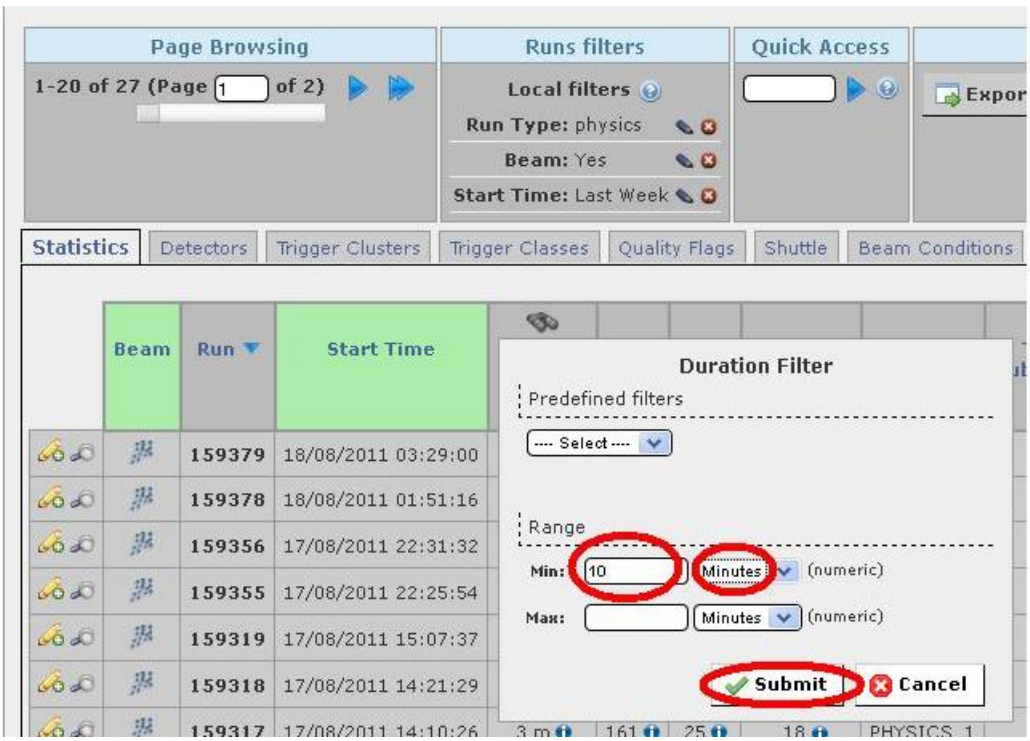
- On the column "Run Type" click on the binocular badge and type "physics" in the field "Run Type Filter". Then do "Submit", and you thus set filter – select only PHYSICS Runs.



- On the column "Beam" click on the binocular badge and select "yes" in the field "Beam Filter". Then do "Submit", and you thus set filter - only Runs with beam.



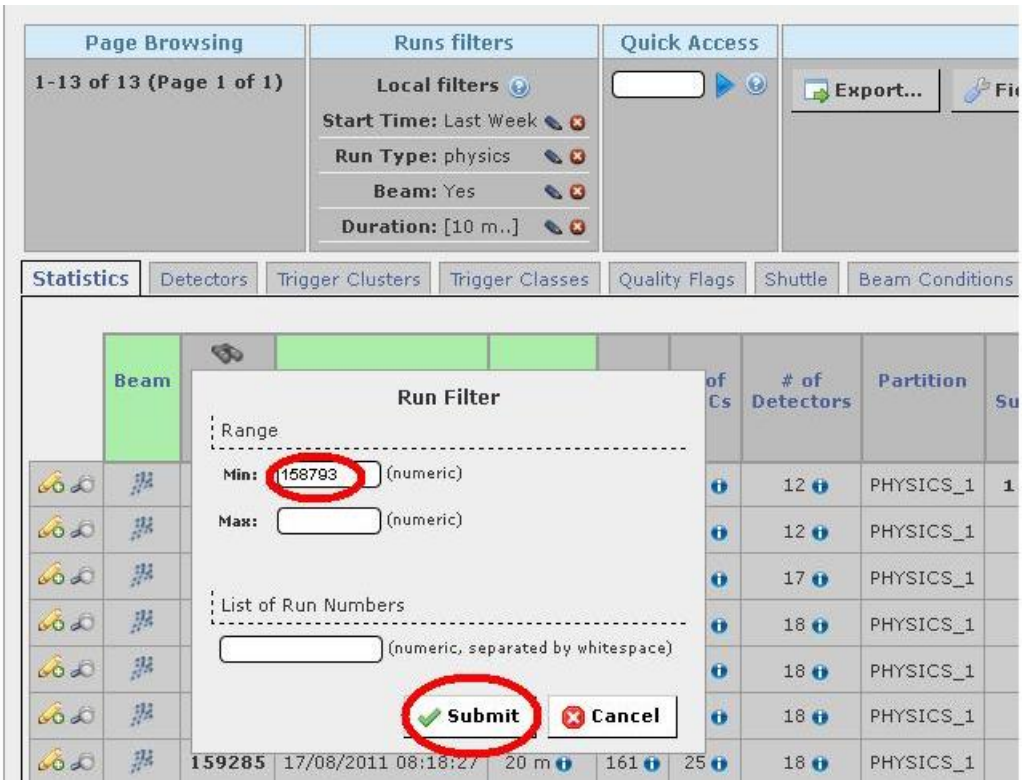
- On the column “Duration” click on the binocular badge and type “10”, then select “Minutes” in the field “Duration Filter”. Then do “Submit”, and you thus set filter - only Runs with duration more, than 10 min.



- On the column "Run" click on the binocular badge and in the field "Run Filter", at the field "Min" type the number of the last Run with RQF, found at check-list as mentioned above. Then do "Submit", and you thus set filter - only Runs following for already marked Run.

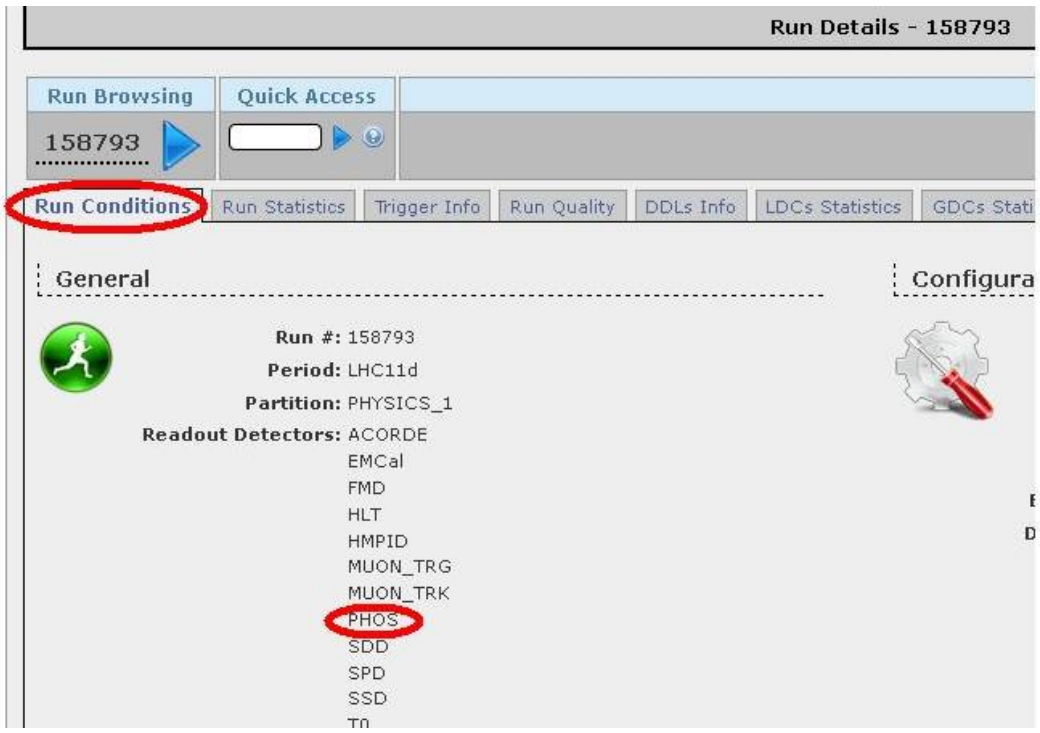
PHOS check list

On-call shifter	Sergey NIKOLAEV			Date	09.08.2011		
C.Plant (level ?~68%,Ready Int. v). Cool. water pr.~550	Alarms, Interlocks	Busy time (~ 1msec)	AVG EVT size (~11 – 17kb)	LDC stat. subevent/ /total~100/90/80 /50/40/45 %	DQM peak position (~500-1000)	Last PHYS-RUN with Quality Flag	RUN type
OK	NO	OK	16.1 kb	reasonable	615.8 double	158793	Physics_1 158777
		MODULE 2		MODULE 3		MODULE 4	

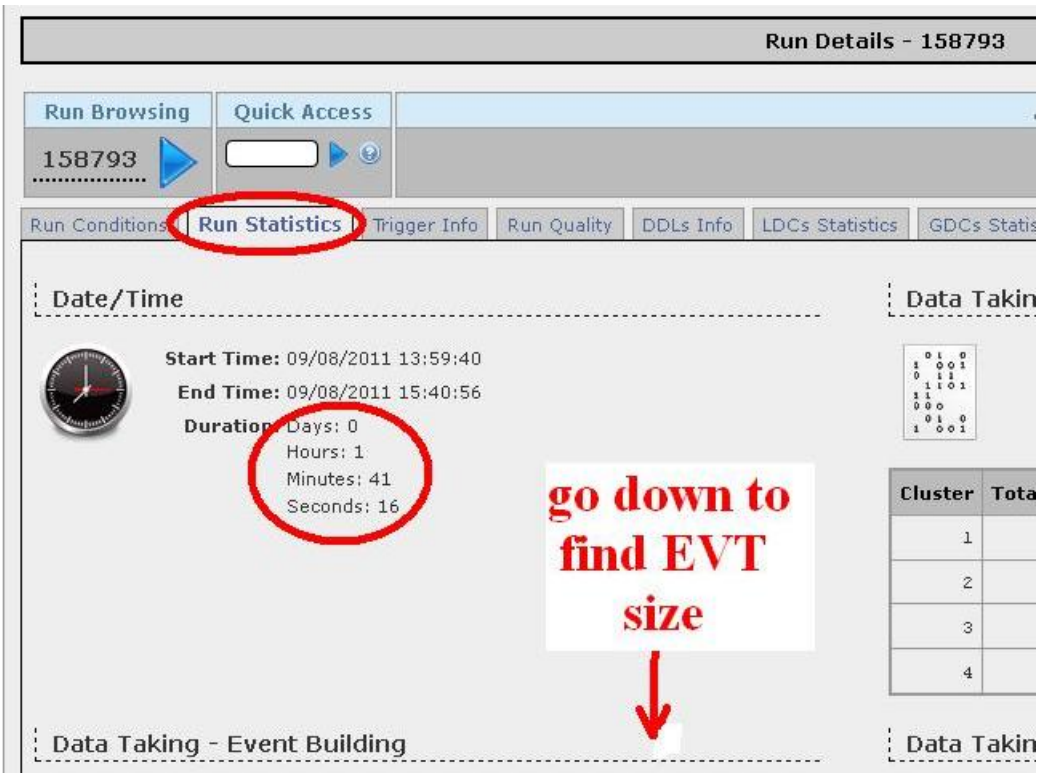


II. Check the PHOS parameters.

- Click on the Magnifying glass badge ("Run Details") in the most left column and you will get to "Run Conditions". Here you should check if PHOS was participated in the run. If no – so no flag.



- Go to "Run Statistics" tab. Check the Avg SubEvent Size for PHOS. It should be ~15 ± 3 kb.



Total Data (MB): 1 960 845

Data Rate (MB/s): 322.72

ta Taking - Subevents and HLT counters Per Detector

Detector	L2a	SubEvents						
		Total		Physics				
		#	MB	#	%	MB	%	Avg SubEvent Size
ACORDE	330 566	330 572	47	330 567	4	47	0	0.1 KB
TRIGGER		673 985	314	639 305	8	298	0	0.5 KB
EMCal	333 228	333 234	9 549	330 567	4	8 233	0	25.5 KB
FMD	330 566	330 572	1 922	330 567	4	1 922	0	6.0 KB
HLT		636 815	43 402	636 629	8	43 402	2	69.8 KB
HMPID	330 566	330 572	5 369	330 567	4	5 369	0	16.6 KB
MUON_TRK	639 004	639 010	31 008	639 005	8	31 008	2	49.7 KB
MUON_TRG	639 167	639 173	4 143	639 005	8	4 134	0	6.6 KB
PHOS	330 566	330 572	4 871	330 567	4	4 871	0	15.1 KB
SDD	330 566	330 572	5 391	330 567	4	5 391	0	16.7 KB

- Go to "LDCs Statistics" tab. Check the sizes of total subevents in MB (the third column) for six PHOS LDCs. The reasonable values are ~ 100/90/80/50/40/45 ± 15%.

Run Details - 158793

Run Browsing | Quick Access

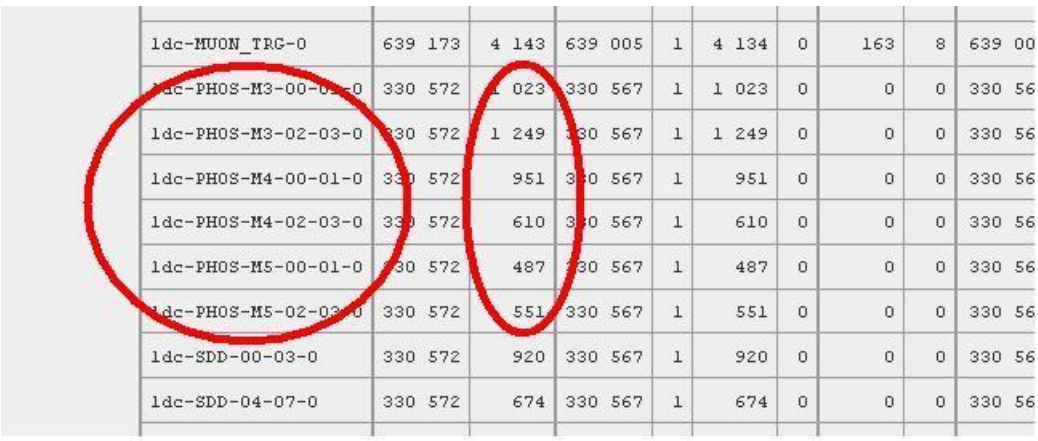
158793

Run Conditions | Run Statistics | Trigger Info | Run Quality | DDLs Info | LDCs Statistics | LDCs Statistic

HLT LDCs Statistics

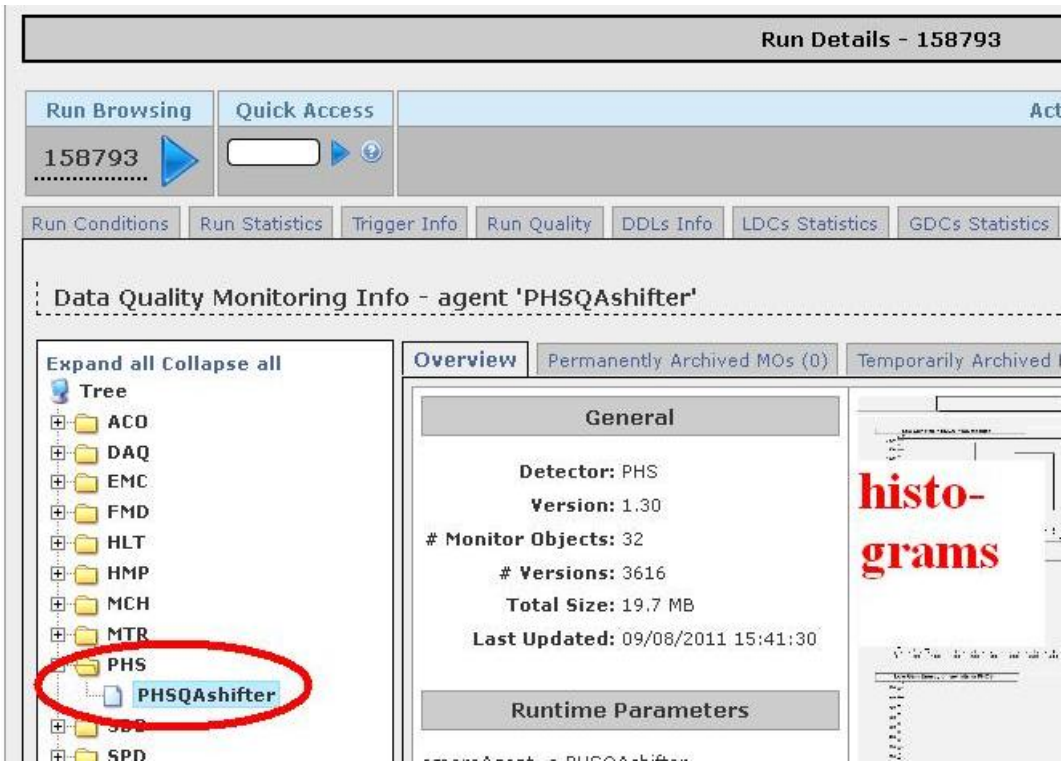
go down to see EVT sizes

LDC	Accepts	Partials	H	
ldc-HLT-0-0	63 949	0		
ldc-HLT-0-1	63 948	0		
ldc-HLT-1-0	63 955	0	0	0
ldc-HLT-1-1	63 940	0	0	0
ldc-HLT-2-0	63 951	0	0	0



ldc-MUON_TRG-0	639 173	4 143	639 005	1	4 134	0	163	8	639 00
ldc-PHOS-M3-00-01-0	330 572	1 023	330 567	1	1 023	0	0	0	330 56
ldc-PHOS-M3-02-03-0	330 572	1 249	330 567	1	1 249	0	0	0	330 56
ldc-PHOS-M4-00-01-0	330 572	951	330 567	1	951	0	0	0	330 56
ldc-PHOS-M4-02-03-0	330 572	610	330 567	1	610	0	0	0	330 56
ldc-PHOS-M5-00-01-0	330 572	487	330 567	1	487	0	0	0	330 56
ldc-PHOS-M5-02-03-0	330 572	551	330 567	1	551	0	0	0	330 56
ldc-SDD-00-03-0	330 572	920	330 567	1	920	0	0	0	330 56
ldc-SDD-04-07-0	330 572	674	330 567	1	674	0	0	0	330 56

- Go to “DQM” tab → PHS → PHSQAshifter.

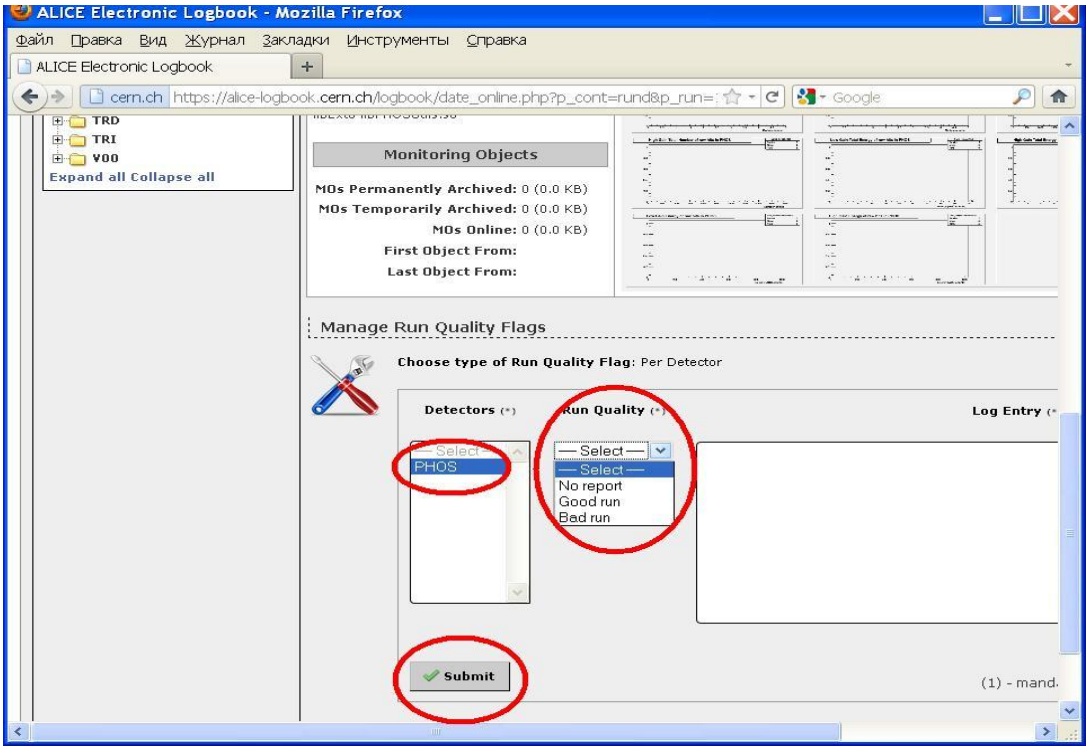


- Click 2 times on the histograms to scale them up. Check the following histograms (see page 2):
  - #1 Low Gain Hits in EMCA PHOS Modules. The events should be in all three modules, and N(mod2) ≥ N(mod3) ≥ N(mod4).
  - #2 High Gain Hits in EMCA PHOS Modules. It should be the same.
  - #4 High Gain Total Number of raw Hits in PHOS. The peak should be ~500 – 1200, it may be single or double.

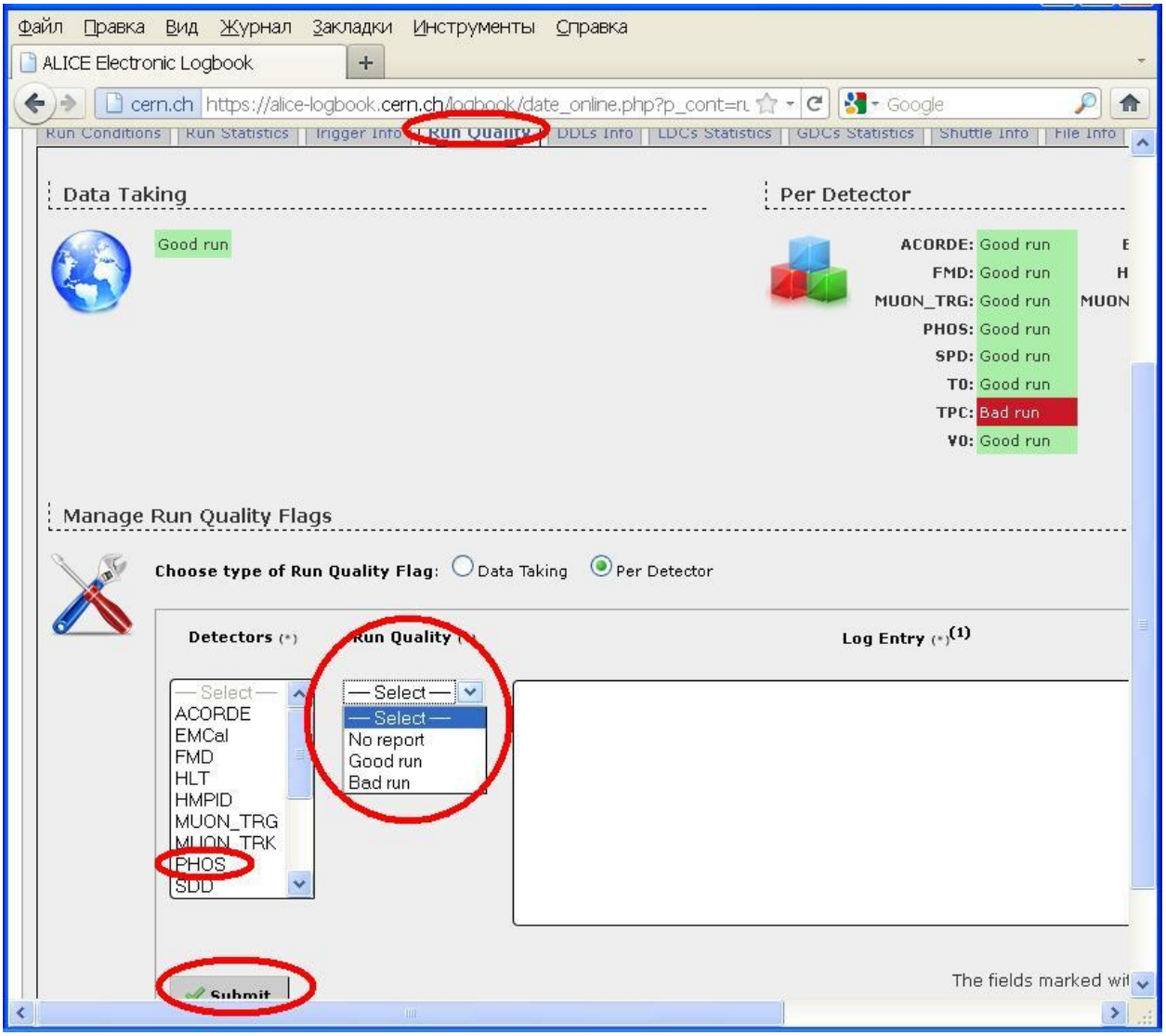
- All that figures are concerned to the p+p beam.
- After checking the PHOS parameters, you may set the RQF. If all mentioned parameters are reasonable for the given run, you may set RQF "Good Run", if no – "Bad Run".

III. Set Run Quality Flags (RQF).

- Close the histogram window and you'll be in DQM tab.
- In the field "Manage Quality Flag" select in "Detector" field: PHOS (in this tab it is already done). Then in the "Run Quality" field select "Good Run" or "Bad Run".



- If you set “Bad Run”, then fill the field “Log Entry”, it’s mandatory. In case of “Good Run” it’s possible too.
- Click “Submit”. The RQF was set for the given Run.
- Another way to set RQF is clicking on the Magnifying glass badge (“Run Details”) in the most left column and then go to “Run Quality” tab. Here you should first mark “Per Detector”, then select in “Detectors” field: PHOS. Then in the “Run Quality” field select “Good Run” or “Bad Run”.



- After setting the RQF for the group of Runs, it’s useful to mark the number of the last Run with RQF in the appropriated cell “Last PHYS-RUN with

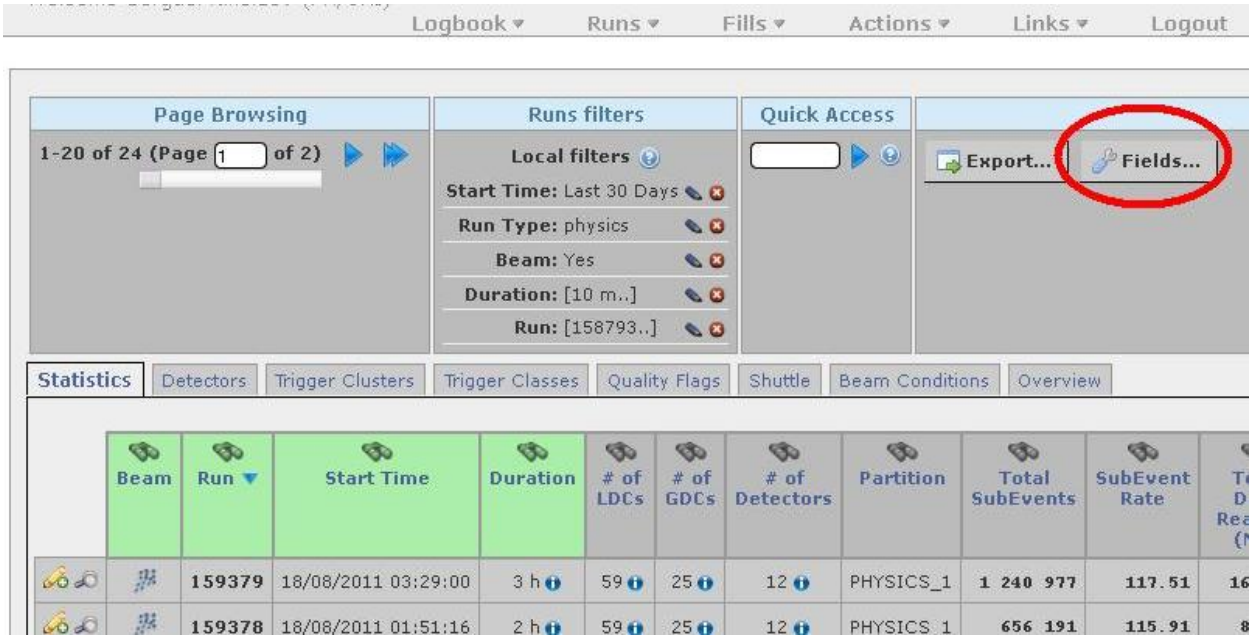
Quality Flag" of the actual Check-list. It'll be convenient for finding out the new, yet not marked runs with no RQF.

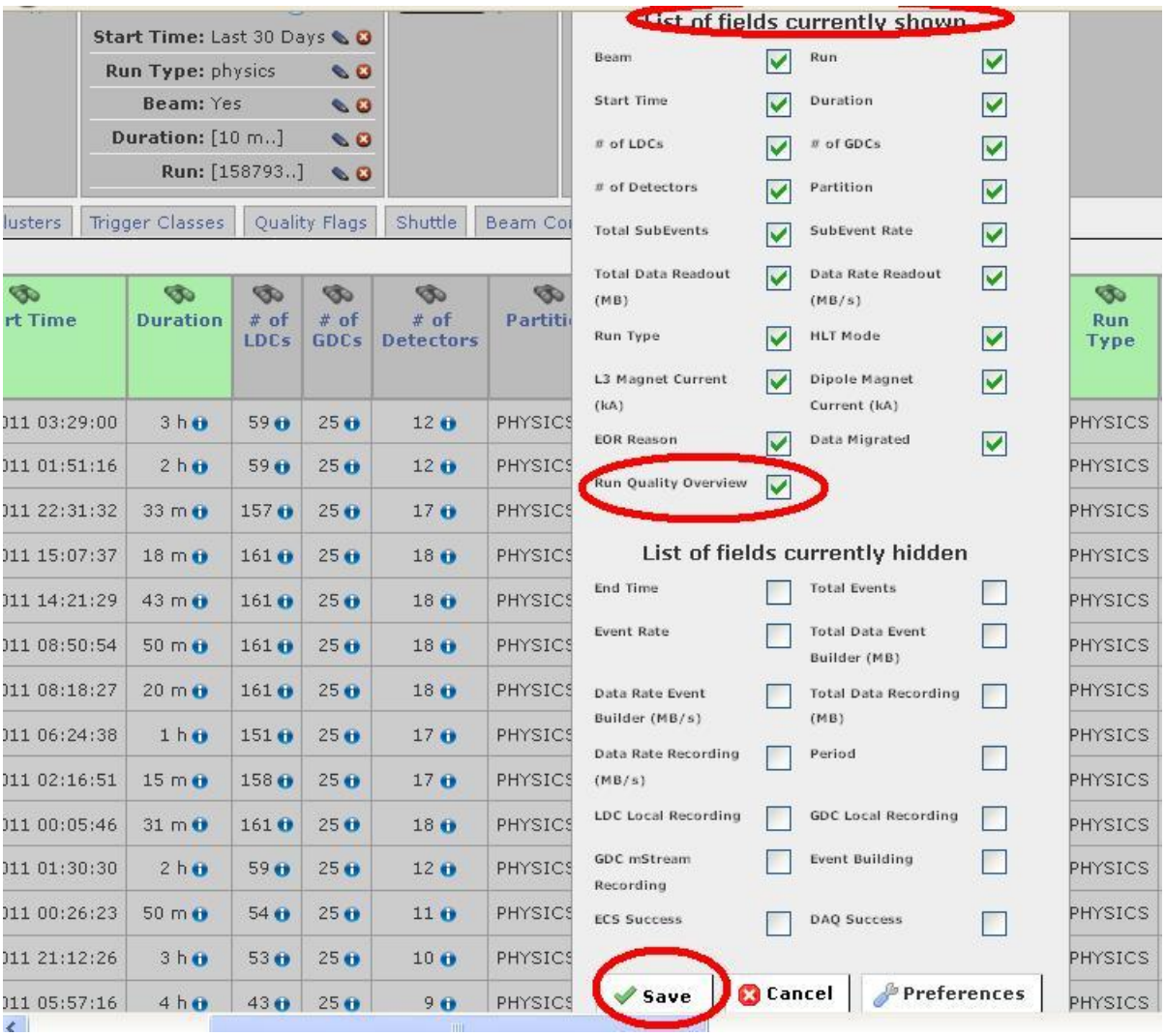
PHOS check list

On-call shifter	Sergey NIKOLAEV			Date	10.08.2011		
C.Plant (level ?~68%,Ready Int. v). Cool. water pr.~550	Alarms, Interlocks	Busy time (~ 1msec)	AVG EVT size (~11 – 17kb)	LDC stat. subevent/ /total~100/90/80 /50/40/45 %	DQM peak position (~500-1000)	Last PHYS-RUN with Quality Flag	RUN type
OK	NO	OK	15.3 kb	reasonable	596.8 double	158879	Physics_1 158844

IV. <u>How to check if Run was marked by RQF.</u>

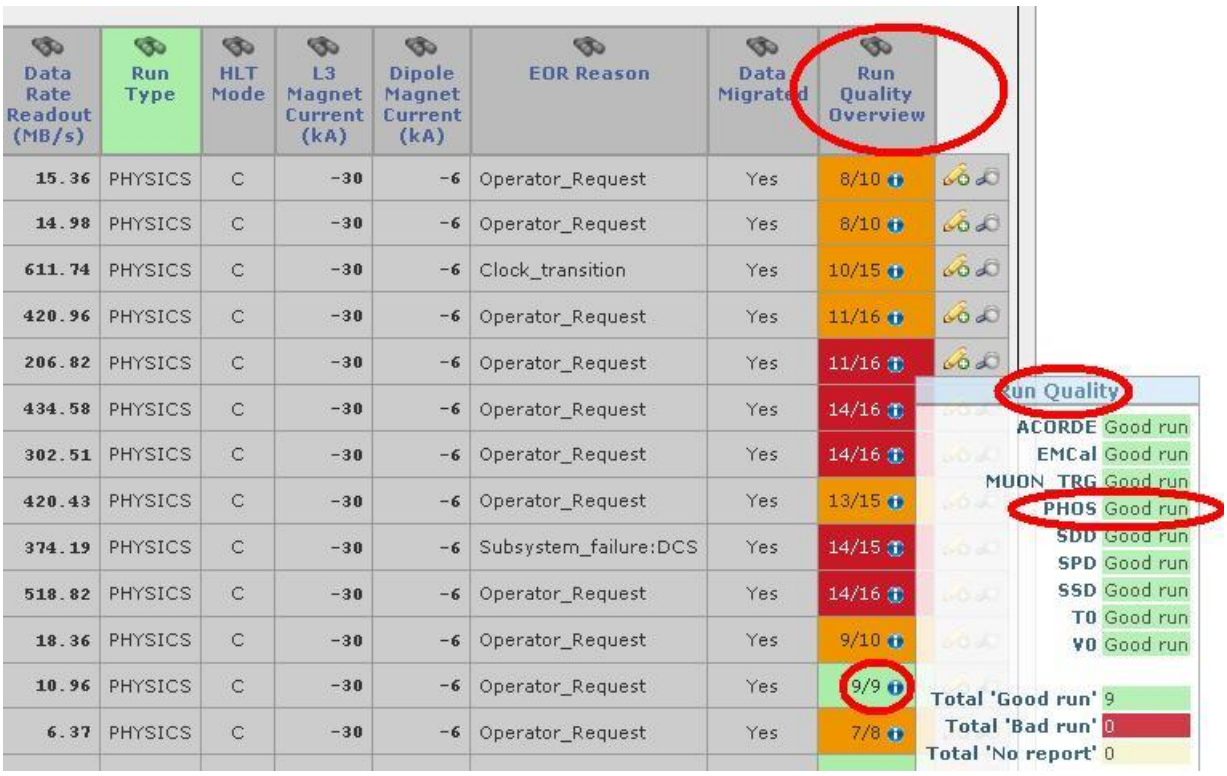
- On the "Fields" tab mark "Run Quality Overview" and "Save" it.





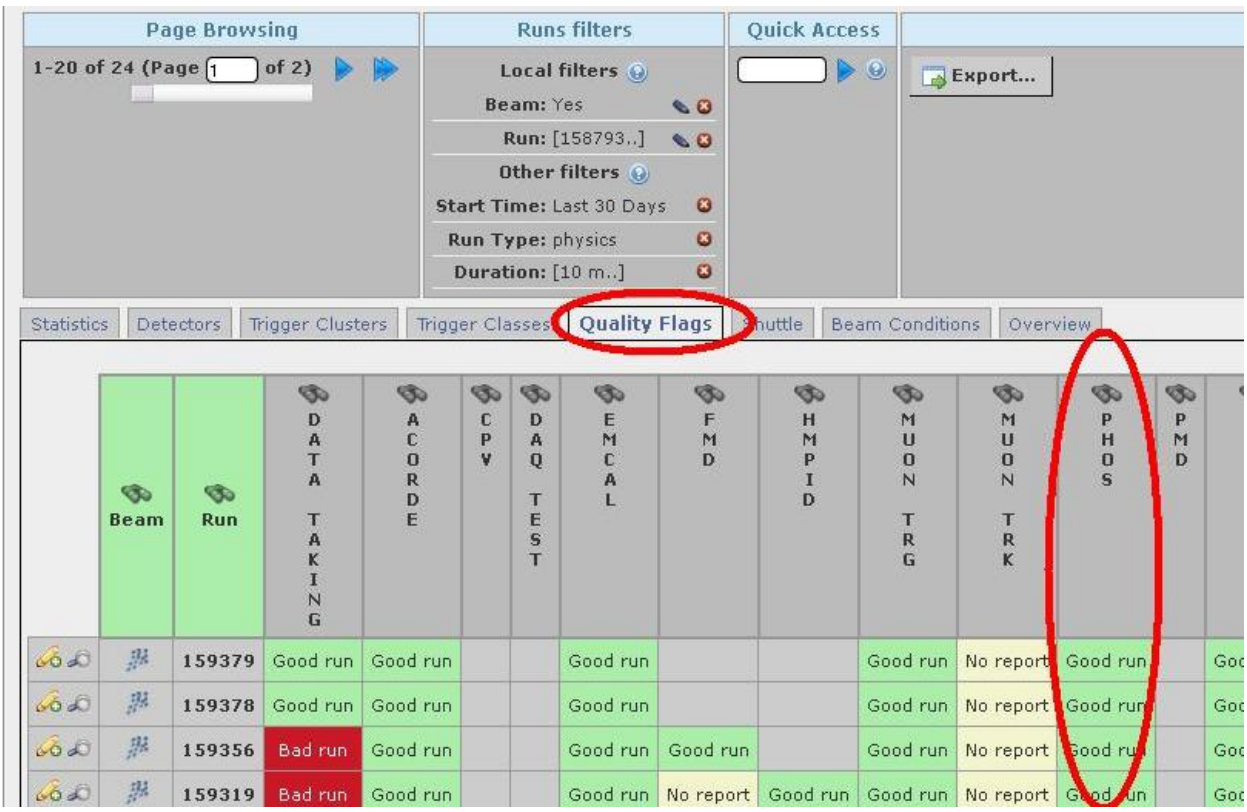
- The new column "Run Quality Overview" will appear in the right. When guide the mouse at a "i" sign, the information about amount of detectors in run and amount of flags RQF be accessible. The colours in this column means:

  - Orange: not all detectors have set yet their flags, but no bad flags so far.
  - Green: all detectors flags set, all good.
  - Pink: at least one flag was set to bad.



Data Rate Readout (MB/s)	Run Type	HLT Mode	L3 Magnet Current (kA)	Dipole Magnet Current (kA)	EOR Reason	Data Migrated	Run Quality Overview
15.36	PHYSICS	C	-30	-6	Operator_Request	Yes	8/10
14.98	PHYSICS	C	-30	-6	Operator_Request	Yes	8/10
611.74	PHYSICS	C	-30	-6	Clock_transition	Yes	10/15
420.96	PHYSICS	C	-30	-6	Operator_Request	Yes	11/16
206.82	PHYSICS	C	-30	-6	Operator_Request	Yes	11/16
434.58	PHYSICS	C	-30	-6	Operator_Request	Yes	14/16
302.51	PHYSICS	C	-30	-6	Operator_Request	Yes	14/16
420.43	PHYSICS	C	-30	-6	Operator_Request	Yes	13/15
374.19	PHYSICS	C	-30	-6	Subsystem_failure:DCS	Yes	14/15
518.82	PHYSICS	C	-30	-6	Operator_Request	Yes	14/16
18.36	PHYSICS	C	-30	-6	Operator_Request	Yes	9/10
10.96	PHYSICS	C	-30	-6	Operator_Request	Yes	9/9
6.37	PHYSICS	C	-30	-6	Operator_Request	Yes	7/8

- The same information in other form you can see if clicking on the tab "Quality Flags".



- Check up that the label has been put in column “Run Quality Overview”, or in the tab “Quality Flags”.