

Central Online DQM Shift Tutorial



Offline Application

Offline | Data

ECAL Light Report Summary 7

Description: An histogram shows for each ECAL crystal matrix, the fraction of good channels / DS. The goodness of the crystals is decided based on the results of every analysis on it. The good cells are divided into several units (supermodules in barrel, sectors in endcap). They are known as FEDs.

Legend:

- green - status = [95, 100]%
- yellow - status = [90, 95]%
- red - status = [0, 89]%

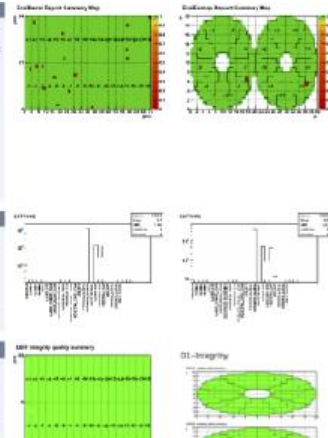
While not being treated (not in DAQ)

ECAL Report Summary 8

Description: Frequency of the event types outside the DQM event stream

DT Integrity Summary

Description: Quality summary covering the data for each crystal detector at the following rates and all the constraints which are decided by the design of the detector



Summary	DT	ECAL	ES	Hcal	Hit	L1t	L1tmu	L1tcalo	Lumi	Pix	Rpc
CSO - 99.1% - Yesterday at 10:48:01	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
Center - 0.0% - Yesterday at 10:44:48	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
DT - 76.2% - Yesterday at 10:48:02	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
ECAL Barrel - 99.7% - Yesterday at 10:47:45	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
ECAL Endcap - 99.9% - Yesterday at 10:45:48	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
ES - 100.0% - Yesterday at 10:44:56	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
Hcal - 98.0% - Yesterday at 10:44:49	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
HcalCalo - 100.0% - Yesterday at 10:50:21	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
L1T - 100.0% - Yesterday at 10:44:47	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
L1TMU - 69.5% - Yesterday at 10:44:59	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD
Physics - 100.0% - Yesterday at 10:44:47	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD	GOOD

Outline

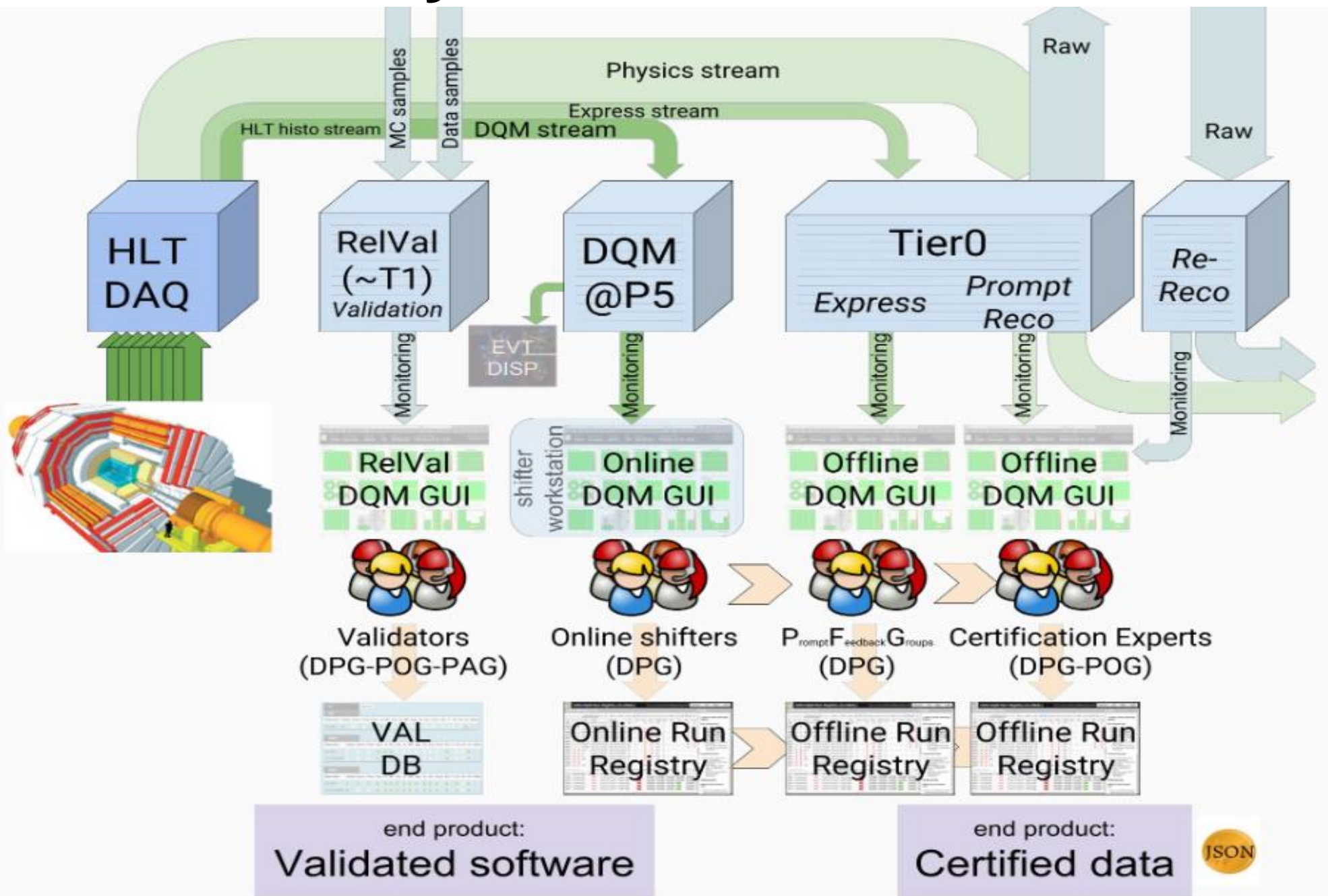
- **Part 1: Overview of the DQM system at P5**
- **Part 2: Your tasks as a DQM shifter**
- **Part 3: DQM Shift tools**
 - ***Main tools:***
 - DQM TWiki instruction
 - E-log
 - DQM GUI
 - Run Registry
 - DQM²
 - ***Other useful tools:*** WBM, CMS-online, F3Mon, and more...
- **Part 4: Summary & Documentation**



Part 1: Overview of the DQM system at P5

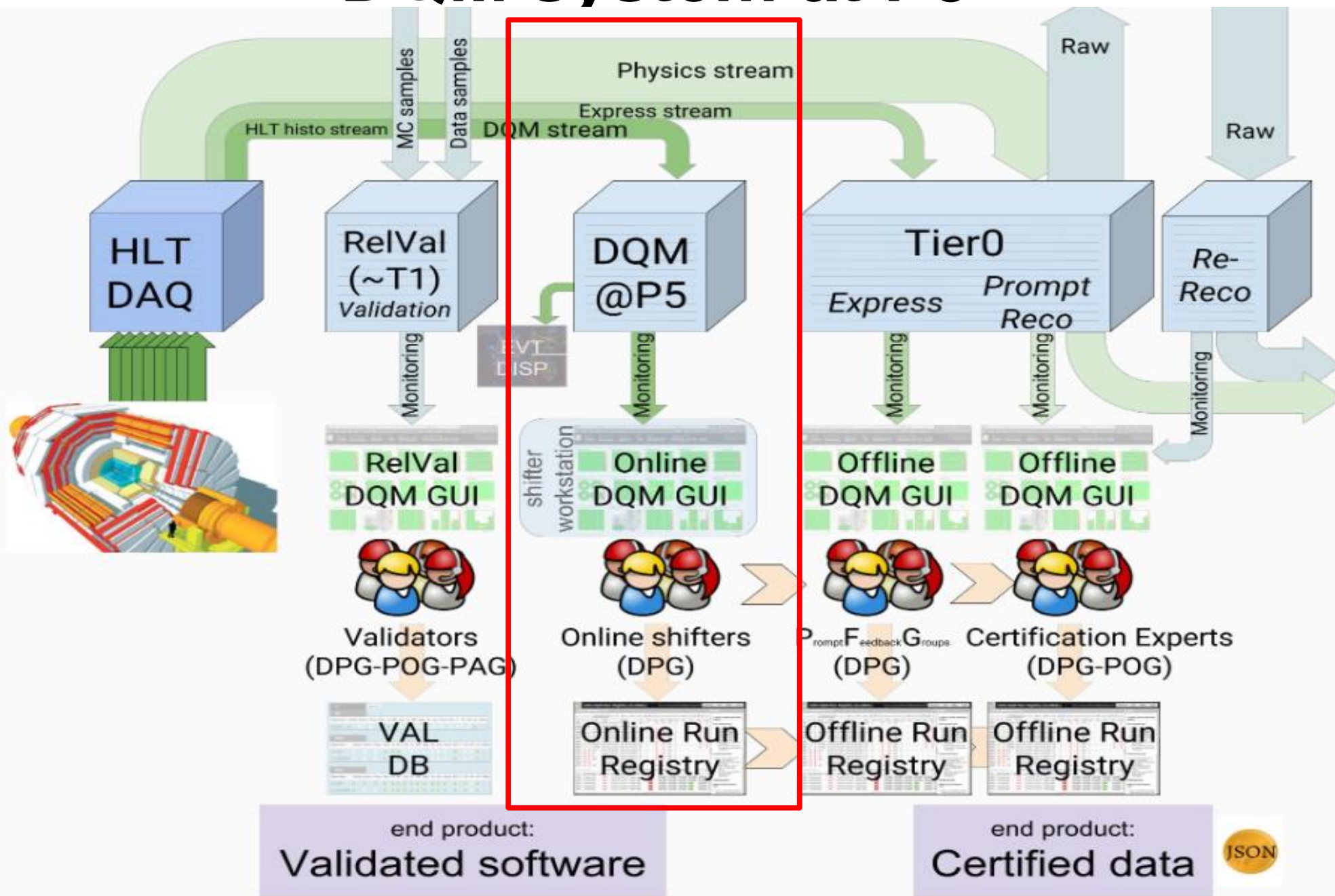


DQM system used in CMS



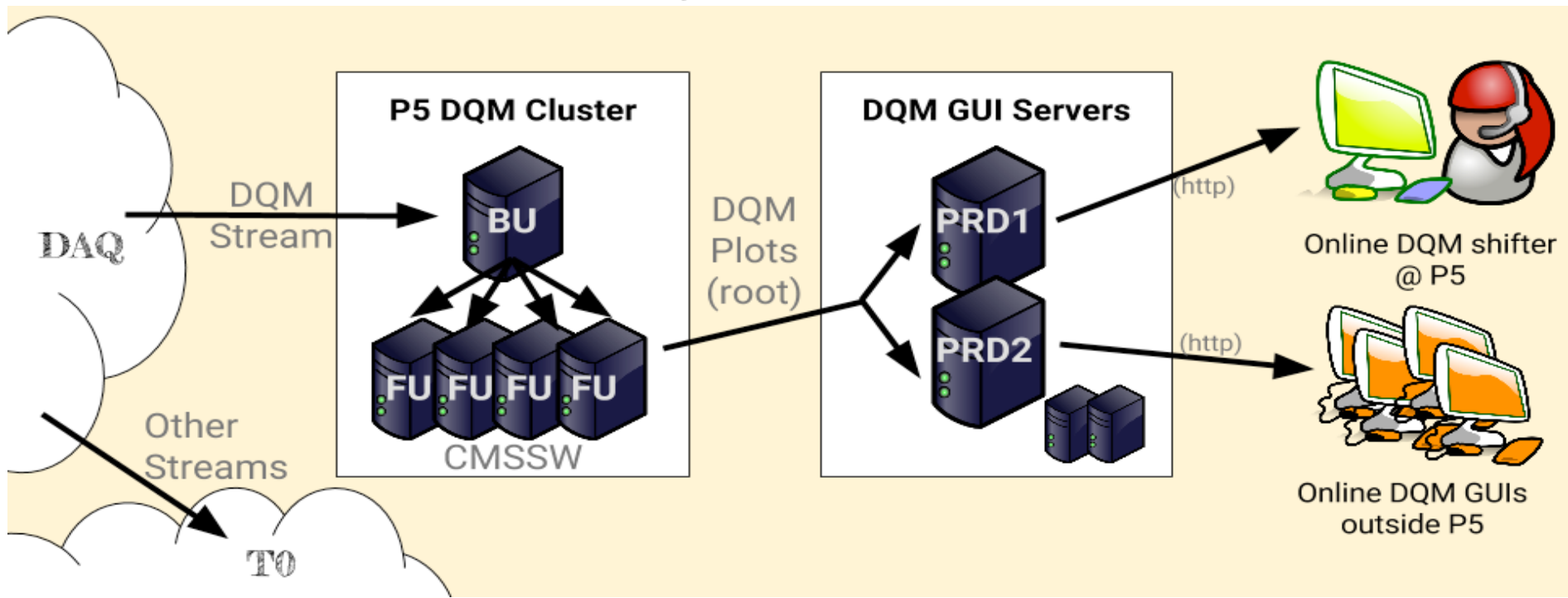


DQM system at P5





DQM system at P5



- The DAQ system delivers a dedicated data stream, the DQM Stream, to the BU (Builder Unit) of the DQM cluster. The DQM Stream contains 8% of the normal Physics Stream.
- The FUs (Filter Units) on the DQM cluster run CMSSW on the data and create ROOT plots.
- The plots are sent to the DQM GUI servers where they are archived and served to the shifter and the general public via the DQM GUI website.



Part 2: Your tasks as a DQM shifter

- Context
- Goals
- Basic “to do” list
 - DQM workflow
 - DQM TWiki instruction
 - Step by Step
 - In case of problems

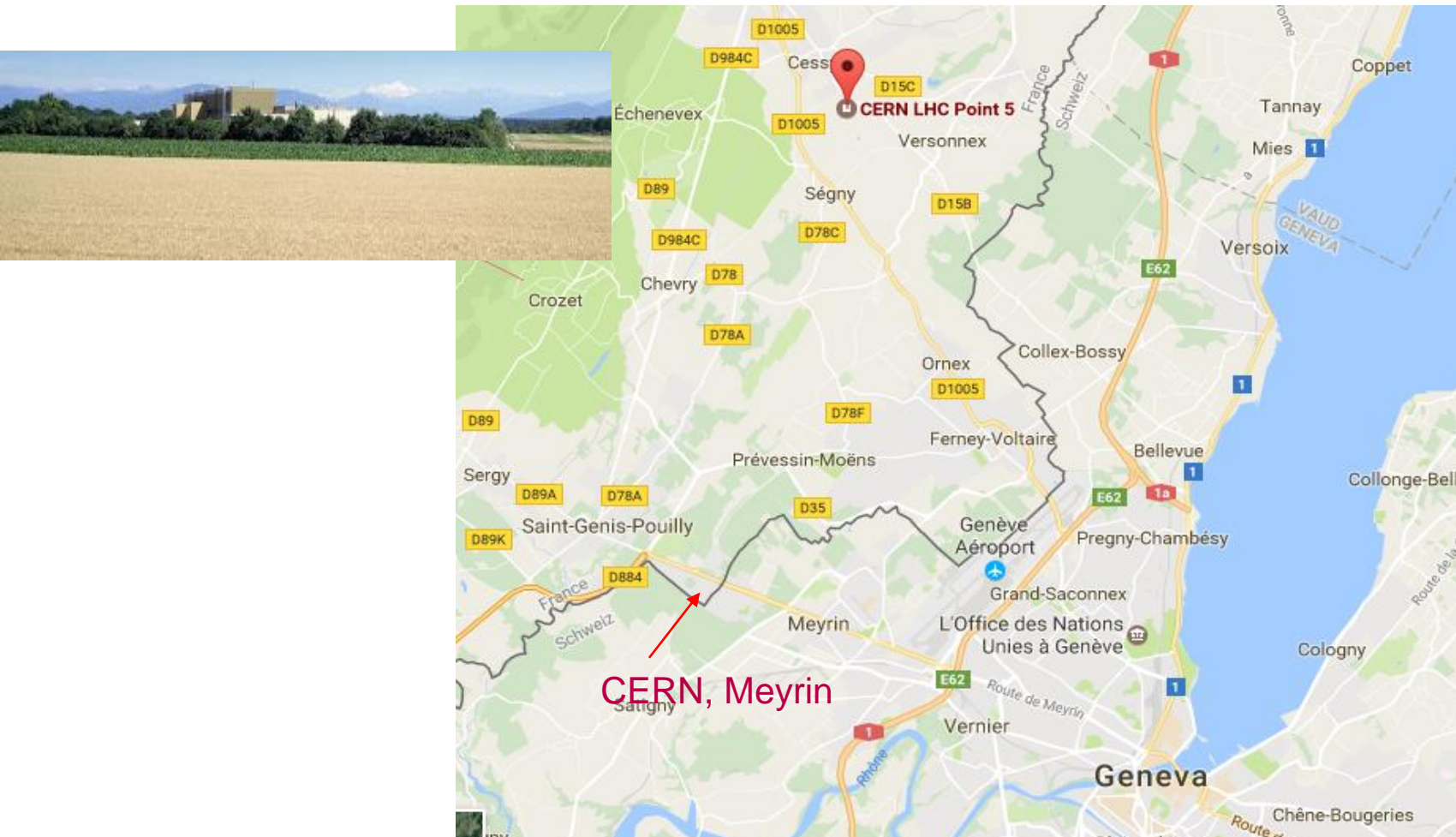


Context: Where?

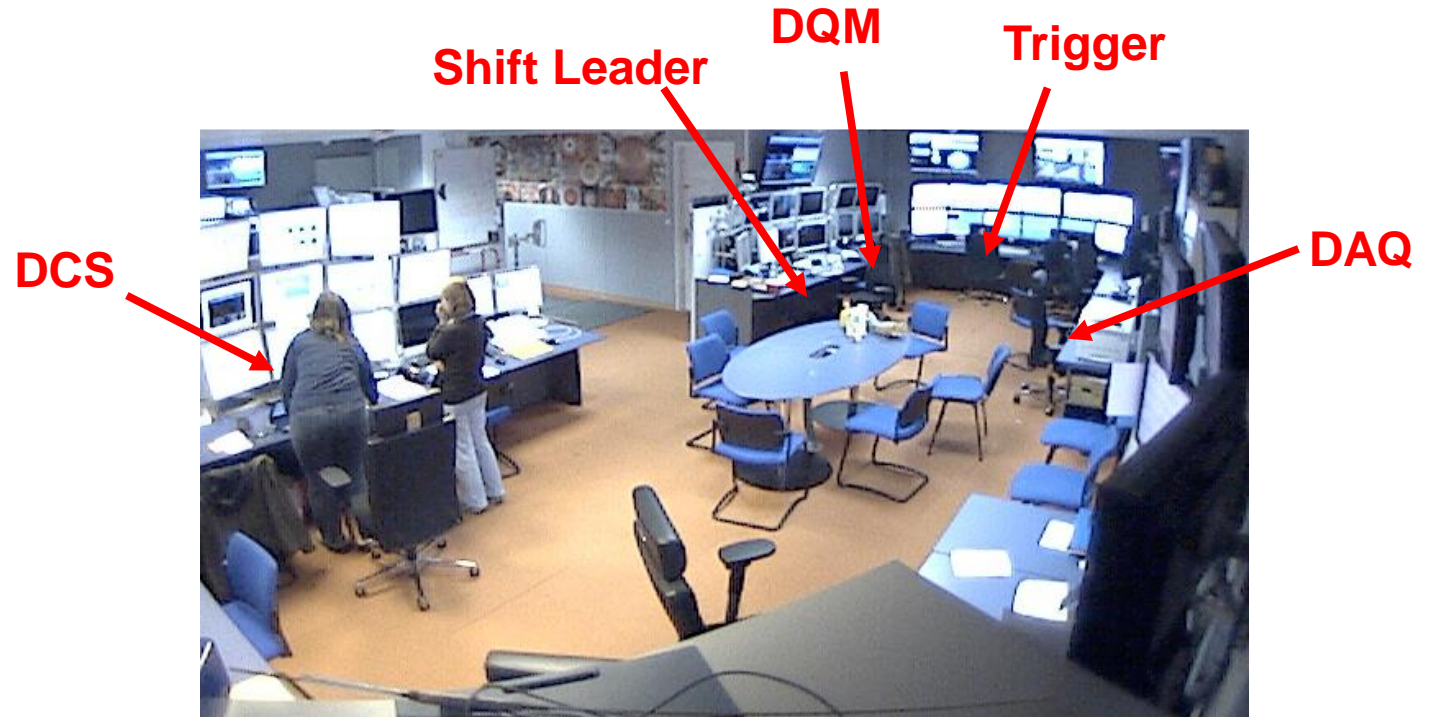
- Online DQM shifts take place at the CMS Control Room at Point 5 blg. 3578 of the LHC in Cessy, France

<https://maps.cern.ch/>

Enter location “ **POINT 5 LHC/LEP** ” in Search



Context: shifts at P5



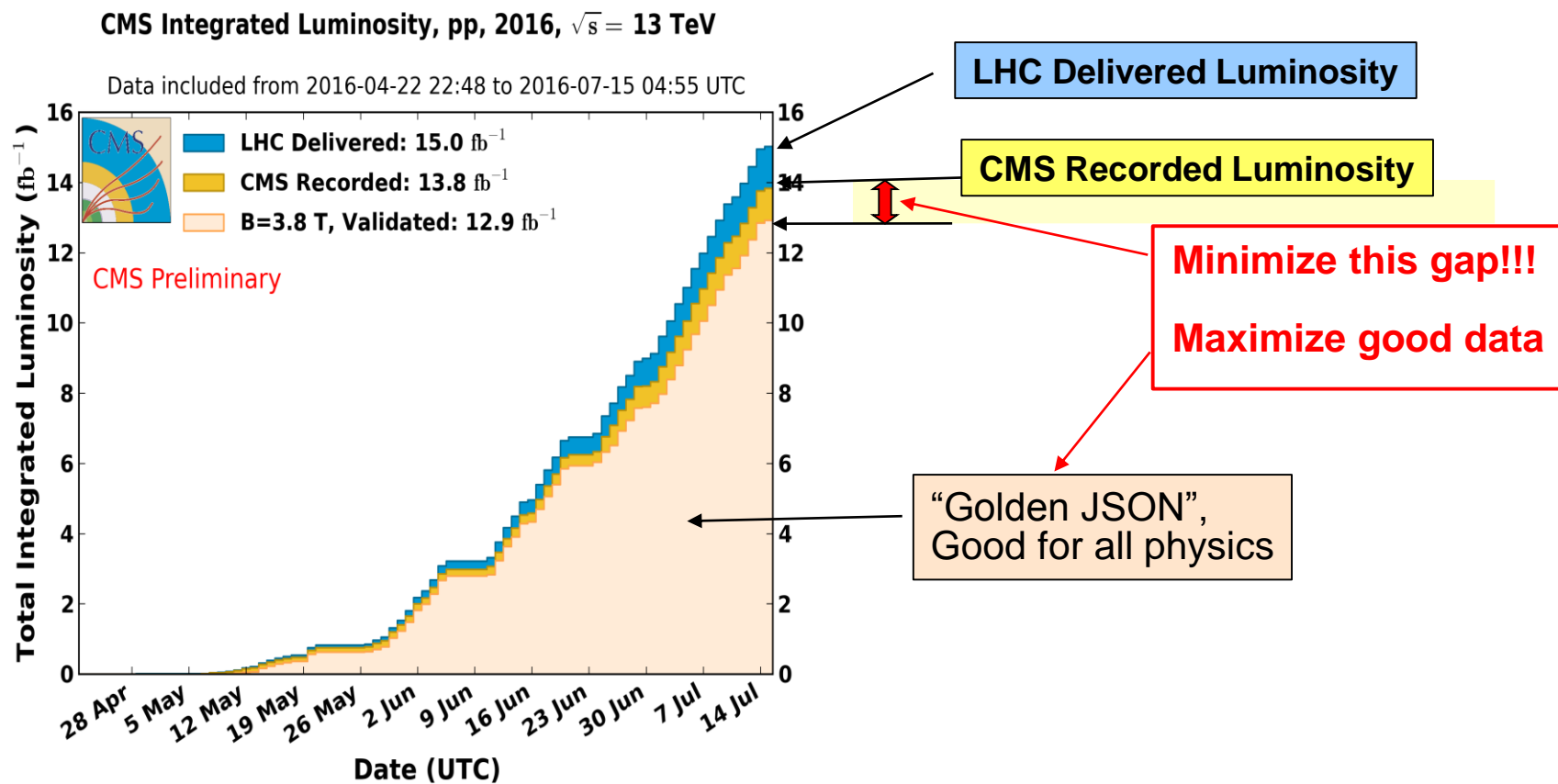
P5 Control room

- Three 8 hour shifts: 07-15, 15-23, 23-07h
- Five Central Shift Crew at P5:
 - **Shift Leader (SL)**: -manages operations inline with daily plan, monitors data taking, communicates with LHC, safety
 - **Technical (DCS)**: ---slow control, access, safety
 - **DAQ**: -----control, monitor & troubleshoot data taking (acquisition)
 - **Trigger**: -----monitoring of the L1 trigger
 - **DQM**: ----- monitoring of data quality



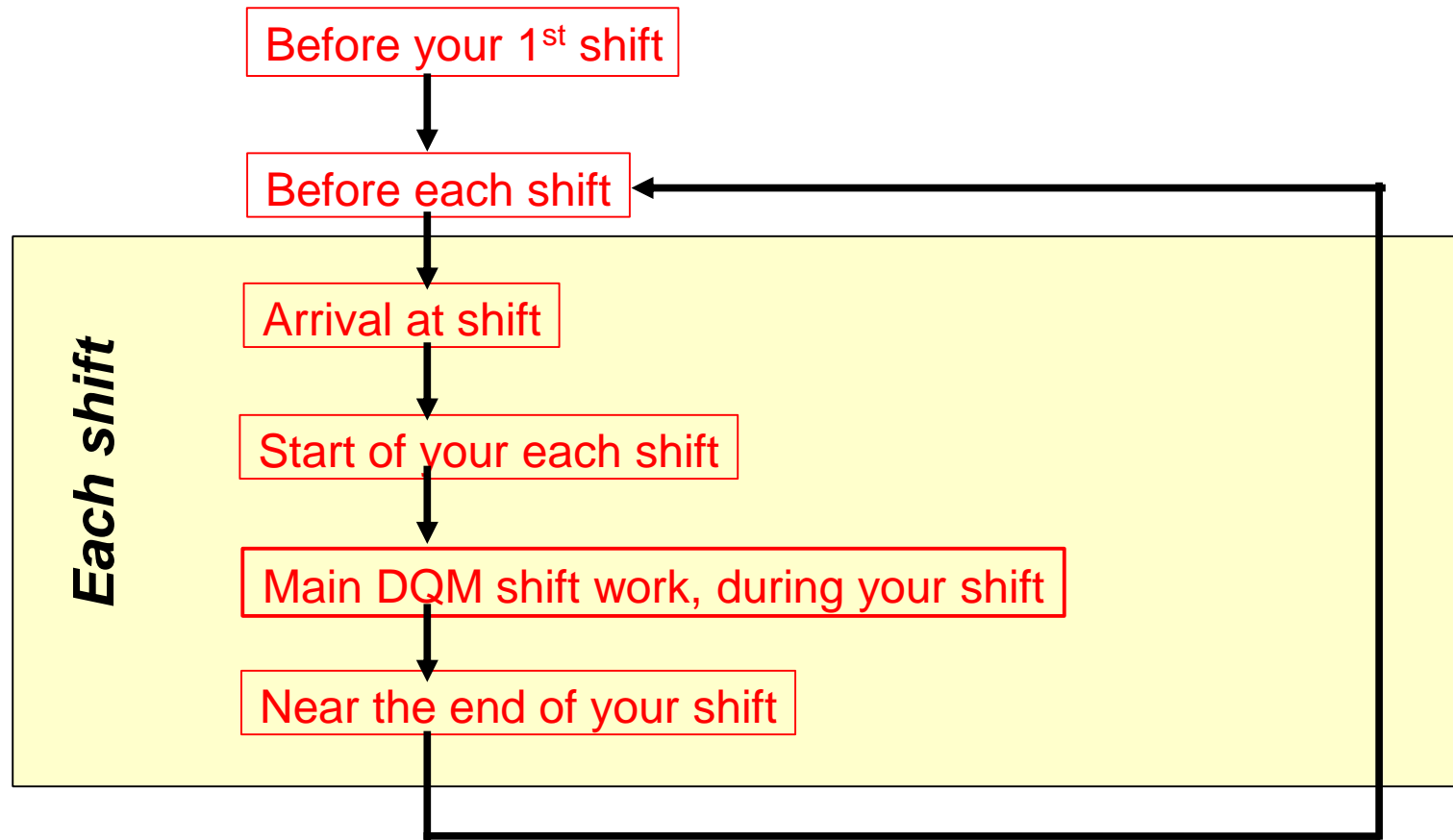
Goal

- **Maximize** the best Quality Data for physics analysis.
- *Spot problems as soon as possible by inspecting data quality while the data is being collected. Take appropriate actions to **minimize** recording data with poor quality.*





DQM shift – Workflow





DQM shift – Shift Instruction TWiki pages

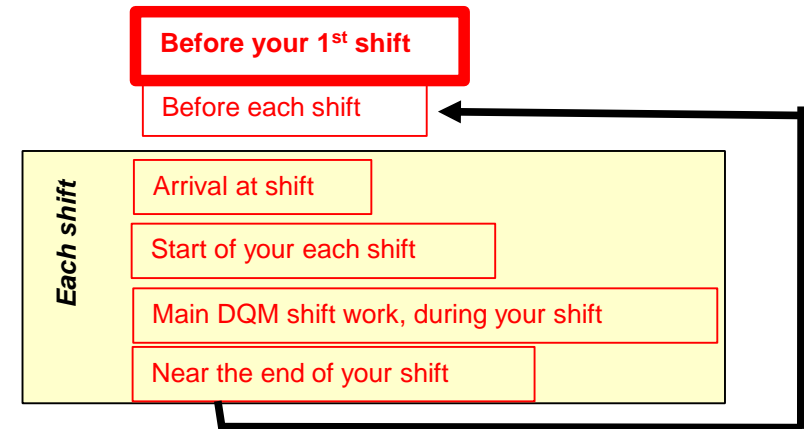
- In the following few pages, we briefly describe each step. More complete instructions are on DQM shift instruction TWiki [1,2,3]. We make significant effort to keep these instructions up-to-date. So please read it carefully and for any questions/comments contact <cms-PPD-conveners-DQM-DC@cernNOSPAM.ch>
- Sub-system DQM instructions [5] are maintained by each sub-system. This is where you find how to check each DQM plots and histograms.
 - DQMShiftinstructions: The general DQM shift instructions
<https://twiki.cern.ch/twiki/bin/view/CMS/DQMShiftinstructions> [1]
<https://twiki.cern.ch/twiki/bin/view/CMS/DQMShiftInstructions#OnlineDQMShift> [2]
 - OnlineDQMShifts: Specific step by step P5 online DQM shift instructions
<https://twiki.cern.ch/twiki/bin/view/CMS/OnlineDQMShifts> [3]
 - DQMOnlineShortTermInstr: The short term P5 online DQM shift instructions
<https://twiki.cern.ch/twiki/bin/view/CMS/DQMOnlineShortTermInstr> [4]
 - DQMShiftHistograms: The links to all the sub-systems' instructions
<https://twiki.cern.ch/twiki/bin/view/CMS/DQMShiftHistograms> [5]
- The short term instructions [4] is maintained by the combination of the DQM core team and sub-systems. must check before each shift.

Interactive!



DQM shift – step by step

Before your 1st shift



- **Get trained and be prepared**
 - Tutorial – 😊 yes! This one.
 - **Overlap training shift** – schedule before your 1st shift
 - **Read shift instructions** (see previous page) **carefully *before your training shift***



DQM shift – step by step

Before your 1st shift

Cont.

- **Do safety training up to 4C, get access right to the P5 area and P5 control room via EDH [2]**
 - This, often, takes quite some time (weeks, some times). Make sure to start this process early, well before your first shift.
- **Find out how to get to P5 [2]**
 - Shuttle is available, typically, only when the LHC is running
 - <http://smb-dep.web.cern.ch/en/ShuttleService> ← Click on Circuit 3
 - If a shuttle is not available, either take your own car or arrange a ride from someone (check shiftlist tool to see the colleagues who are taking the same shift as yours.)
- **Subscribe to hypernews:**
 - <https://hypernews.cern.ch/HyperNews/CMS/get/EvFDqmAnnounce.html> [6]
 - <https://hypernews.cern.ch/HyperNews/CMS/get/commissioning.html> [7]



DQM shift – step by step

https://twiki.cern.ch/twiki/bin/viewauth/CMS/OnlineDQMShifts#Checklist_of_things_to_do_before [3]

Before each shift

■ Read short term shift instructions [4]

- Short term shift instructions contain information which may change often.

■ Read DQM and shift-leader e-log of the past ~24 hours.

- Cmsonline.cern.ch → elog
 - Subsystem → Event Display and DQM
 - Central → Shift Leader

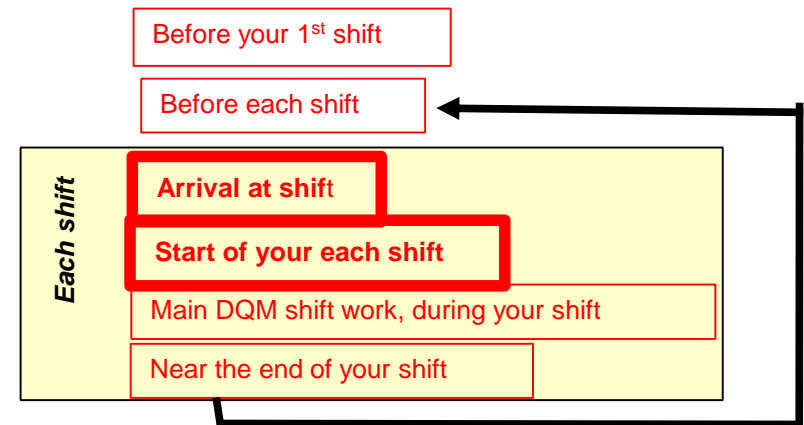
■ Read DQM and commissioning hypernews [6] [7]

- General information, like shift cancellations or entrance information, is announced on the CMS Commissioning hypernews. It's important that you follow it.



DQM shift – step by step

<https://twiki.cern.ch/twiki/bin/viewauth/CMS/OnlineDQMShifts> [3]



Arrival at shift

- Arrive at P5 at least 10 min before your shift, find out what has been happening from the previous DQM shifter. Then, say hello to the current shift-leader & other shifters and find out about the plan for this shift.

Start of your shift

- Make sure all the DQM system & shift tools are properly working

MUST FOLLOW all the checklist in [3] at:

https://twiki.cern.ch/twiki/bin/viewauth/CMS/OnlineDQMShifts#Checklist_of_things_to_do_at_the



DQM shift – step by step

<https://twiki.cern.ch/twiki/bin/viewauth/CMS/OnlineDQMShifts> [3]

Main DQM shift work, during your shift

- Examine Data quality using **DQM GUI** following each subsystem instructions [4,5], and record the results for each components in **RunRegistry**, run by run.
- Check **DQM²** during a run

See Part 3: DQM TOOLS

A blue-bordered box containing the text 'See Part 3: DQM TOOLS'. Three blue arrows originate from this box: one points to 'DQM GUI' in the first list item, one points to 'RunRegistry' in the first list item, and one points to 'DQM²' in the second list item.

Near the end of your shift

- During a shift, keep a log of your shift summary in a separate editor, and just before the end of your shift, copy/enter the summary in **e-log**.
- Communicate appropriately any persistent problems (see [3])
- Log out from Run Registry and e-log
- Communicate with the next DQM shifter



In case of problems

<https://twiki.cern.ch/twiki/bin/viewauth/CMS/OnlineDQMShifts> [3]

https://twiki.cern.ch/twiki/bin/view/CMS/OnlineDQMShifts#Things_to_do_during_your_shift

- **In case of problems:**

1. Check with the **twiki**, including the **short term instructions**.
2. Check immediately with the **shift leader**. This is important, because some problems may require immediate action, like stopping or restarting the run.
3. Check with the **sub-system expert**, if one is available at P5 and otherwise call the sub-system DOC: [phone numbers are here](#)
4. Always tell the DOC that you will make an ELog entry and **ask him/her to respond to it in the ELog**.
5. Make an **ELog entry**: It should be of type **Problem Report** and should contain:
 - The **run number** and, if relevant, the **lumisection number**
 - The **subsystem** that seems to be problematic
 - The location of the **plot** and optionally a screenshot - If you want to add a link to the DQM GUI, don't copy-paste the address from the browser, but use the **Link-Me** on the right.
 - An **explanation** of the problem
 - **Actions** taken: Did you call the sub-system DOC? Yes or no. Why or why not?
 - Initial **response** of the DOC and things they asked you to do.
 - Any other relevant information that you can think of
6. Update the **Run Registry**:
 - Subsystems with apparent problems should be marked as BAD, unless the shift leader or the sub-system expert tells you otherwise.
 - Include all known relevant information in the subsystem comment fields.

- In case of **problems with DQM** itself:

1. First assert that it is indeed a problem with the DQM systems:
 - Is it a problem with the Run Registry? [Check here first...](#)
 - Is it a problem with the DQM GUI? [Check here first...](#)
 - Is it a problem with your workstation as a whole? First check with the people around you, do they have the same problem?
2. Give it some time. As a general rule we ask you to wait until a problem is clearly there for longer than 10 minutes. E.g. after the start of a run, it can take a while before the DAQ sends the files to the DQM systems and the GUI starts showing data.
3. Call the DQM on-call: [phone numbers are here](#)
4. Make an **ELog entry**, just like explained above.

- See details in the above TWiki link and follow the instructions.
- Few representatives are noted in the next page

Copy of the
TWiki page



In case of problems

<https://twiki.cern.ch/twiki/bin/viewauth/CMS/OnlineDQMShifts> [3]

- Problems can be dynamic. Follow the TWiki instructions above and also check the Short-term instructions [4]
- Roughly speaking, problems you encounter during your shift are two kinds:
 - 1) Problem with core DQM tools themselves.

DQM on-call Expert :
165579

- 2) Problem associated with actual data quality problems/questions.
 - Always consult with a shift-leader first. Call subsystem DOCs as needed after consulting with the shift-leader.
- Enter/record each problem in e-log in each separate entry.
- Carry shift-leader and DQM on-call expert's full phone #s with you (for example, if you have an unexpected problem getting to P5, on your way):

Shift Leader: +41 22 76 77111, DQM on-call: +41 75 411 5579



■ Part 3: DQM Shift tools

■ *Core tools:*

- DQM Twiki instructions ([see p8, \[1-5\]](#))
- E-log ([see p11, 13, 15](#))
- DQM GUI,
- Run Registry,
- DQM²,

- *Other useful tools:* WBM, CMS-online, F3Mon, and more...



Run by Run Examination Procedure

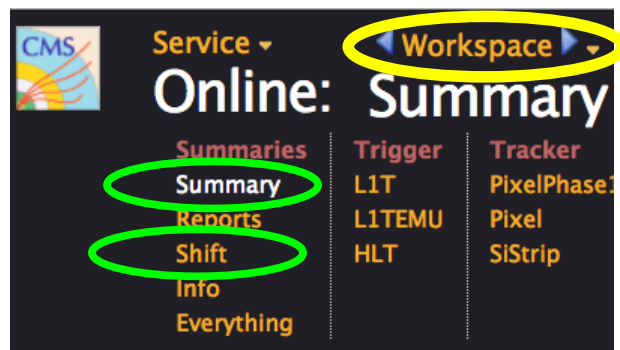
https://twiki.cern.ch/twiki/bin/view/CMS/OnlineDQMShifts#Things_to_do_during_your_shift [3]

- **Run Registry** should tell you which run to check ('significant run'), automatically
 - Each new run should appear in the Run Summary table automatically.
 - All 'significant runs' should appear in the Selected Runs table, so that they can be certified:
 - **Collision runs** are always significant
 - **Cosmic runs** are significant if the number of events (in the Events column) is more than 1,000
 - **Commissioning runs** are significant if the number of events is more than 10,000
- Using **DQM GUI, Run Registry, & TWiki shift instructions [3, 4, 5]**, examine data quality of each 'significant run', plot by plot, carefully
- Enter the results of what you examined into **Run Registry** component by component for each 'significant run', then move the run status from 'open' to 'signed off'.
- Check **DQM²** monitor during a run. Two things to check here are:
 - The delays of the file arrival in the top plot
 - The correct running of the applications in the table under the plots



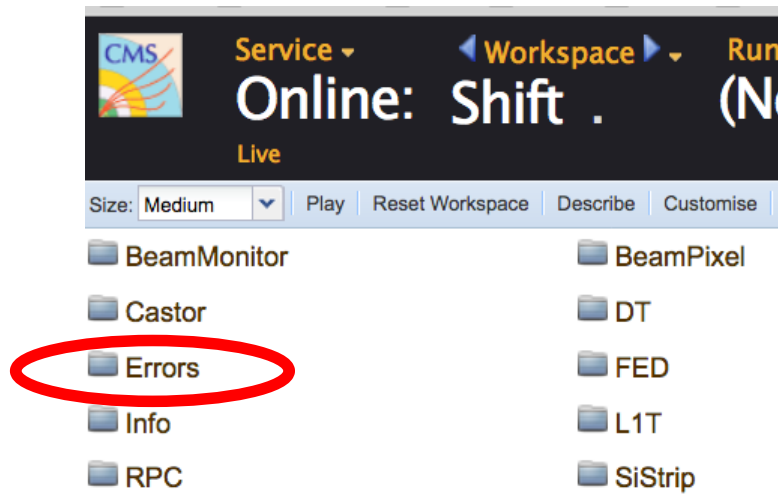
DQM Tool: DQM GUI

https://twiki.cern.ch/twiki/bin/view/CMS/OnlineDQMShifts#Things_to_do_during_your_shift [3]



Make sure you have DQM GUI open 3 times

- Workspace → Summary
- Workspace → Shift → each sub-system
- Workspace → Shift → Errors





DQM GUI: Summary Workspace

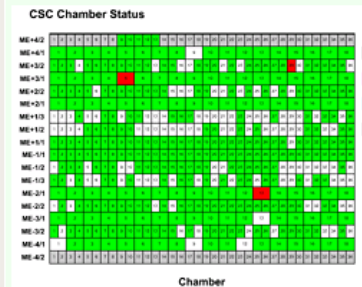
One plot per sub-system

Service: **Online: Summary** Run #: 23'596 LS #: 145 Event #: 22'223'311 Run started: Sun 06, 06:05

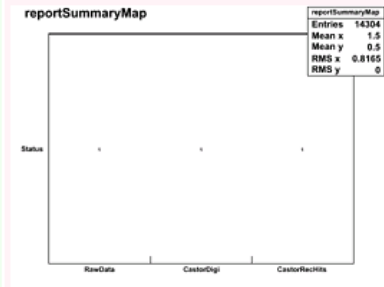
Summaries: Tracker/Muons Calorimeter Trigger/Lumi FeedBack for Collisions (Hide)
 Summary: CSC Castor HLT BeamMonitor FeedBack
 Reports: DT EcalBarrel HLX Tracking FeedBack
 Shift: Pixel EcalEndcap L1T Ecal FeedBack
 Everything: RPC EcalPreshower L1TEMU Hcal FeedBack
 SiStrip HCAL L1T FeedBack
 HCalCalib HLT FeedBack

CMS DQM GUI (s) Dec 7, 2009 at 0:00 Darren Fuigh 365104

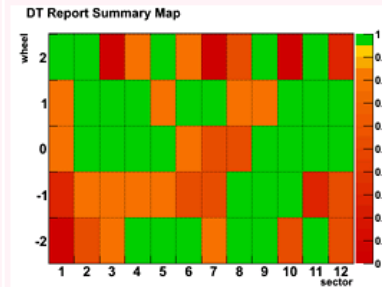
CSC - 99.1% - Yesterday at 10:46.01



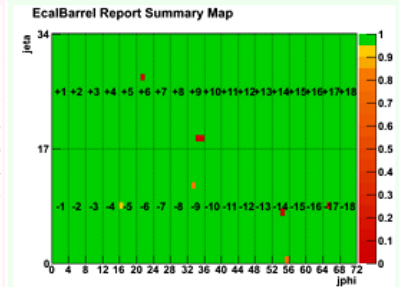
Castor - 0.0% - Yesterday at 10:44.48



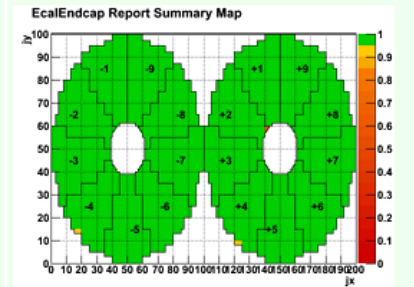
DT - 76.3% - Yesterday at 10:46.02



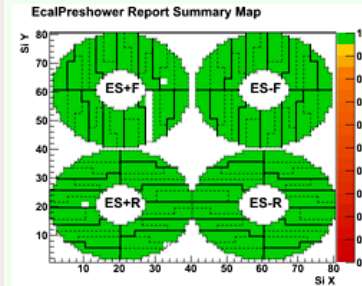
EcalBarrel - 99.7% - Yesterday at 10:47.45



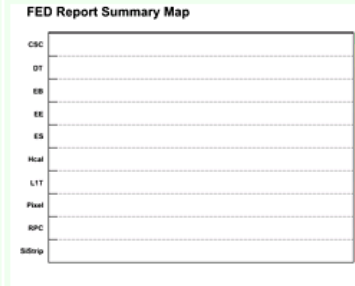
EcalEndcap - 99.9% - Yesterday at 10:45.48



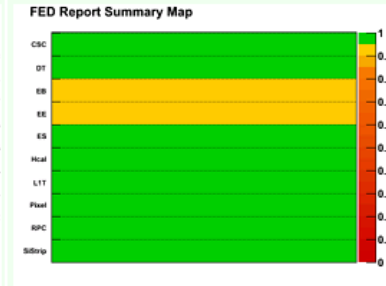
EcalPreshower - 100.0% - Yesterday at 10:44.48



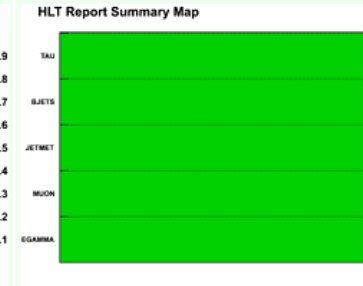
FED - 100.0% - Yesterday at 10:51.21



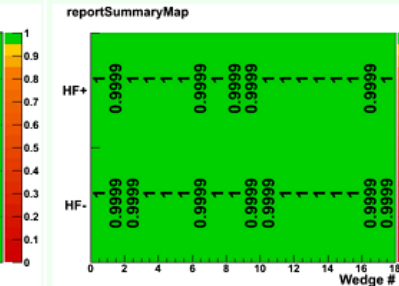
FEDTest - 99.0% - Yesterday at 10:44.48



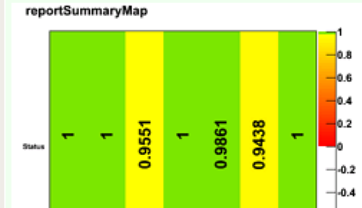
HLT - 100.0% - Yesterday at 10:46.47



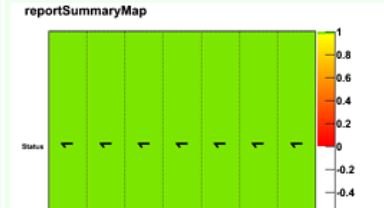
HLX - 100.0% - Yesterday at 10:44.56



Hcal - 98.9% - Yesterday at 10:44.48



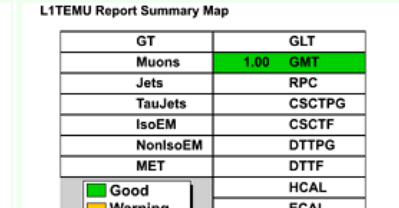
HcalCalib - 100.0% - Yesterday at 10:50.21



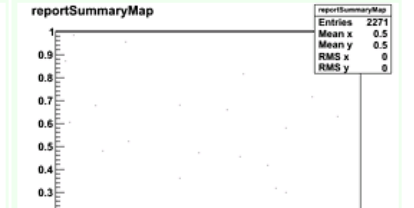
L1T - 100.0% - Yesterday at 10:44.47



L1TEMU - 99.5% - Yesterday at 10:44.59



Physics - 100.0% - Yesterday at 10:44.47





DQM GUI: HV information vs Lumi Section

[https://twiki.cern.ch/twiki/bin/view/CMS/OnlineDQMShifts#To check in the DQM GUI at the b](https://twiki.cern.ch/twiki/bin/view/CMS/OnlineDQMShifts#To_check_in_the_DQM_GUI_at_the_b) [3]

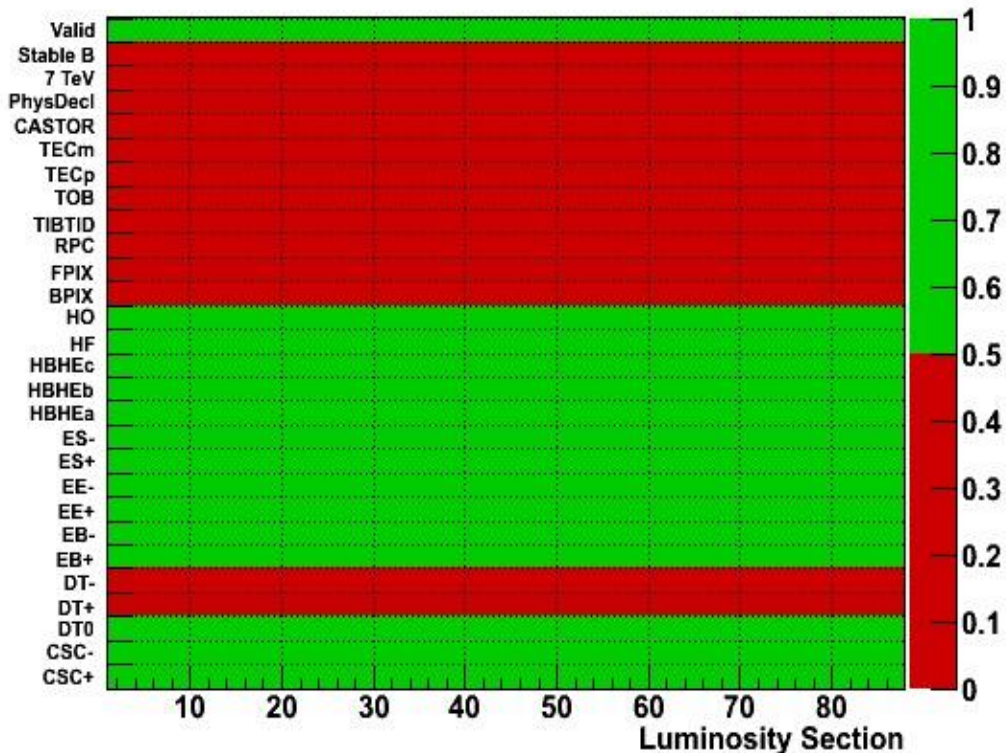
This plot tells you which subsystems have HV (=High Voltage) on and which subsystems have HV off (or STANDBY). Check with the DCS shifter (Technical shifter) if things seem weird.

Also, check this HV information against Run Registry LumiSection table information. If the information is inconsistent, report the problem

If HV remains OFF throughout the entire run corresponding sub-system would appear yellow in Run Registry (no need to check histograms)

If HV is ON for at least one LS, follow usual procedure to certify.

HV and Beam Status vs Lumi



HV and Beam Status vs Lumi

One of the plots in the summary workspace



DQM GUI: 'Shift' workspace example

Service ▾
Workspace ▾
Run # ▾
LS #
Event #
Run started

IGUANA DQM GUI
 at srv-C2D05-19
 Oct 4, 2009 at 13:41:46 UTC

Online
Shift
116'128
6
778'132
Fri 02, 14:19

Reference
Customise ▾
Show All ▾
Search
(64553 objects)
Online

Please file any feature requests and any bugs you find in [Savannah](#). Find [shift instructions](#) here.

Small
Large
Play
Reset workspace
Customise
Layouts
(Top) / 00 Shift / EcalEndcap

00 Report Summary

EcalEndcap Report Summary Map

01 Event Type

EVTTYPE

EcalEndcap/EcalInfo/EVTTYPE

02 Integrity Summary

Description

EEIT EE - integrity quality summary: Integrity quality summary. Expected all green color. [DQMShiftEcal](#)

03 PedestalOnline RMS

04 Occupancy Recharts EE +

04 Occupancy Recharts EE -

05 Occupancy Trigger Primitives EE +

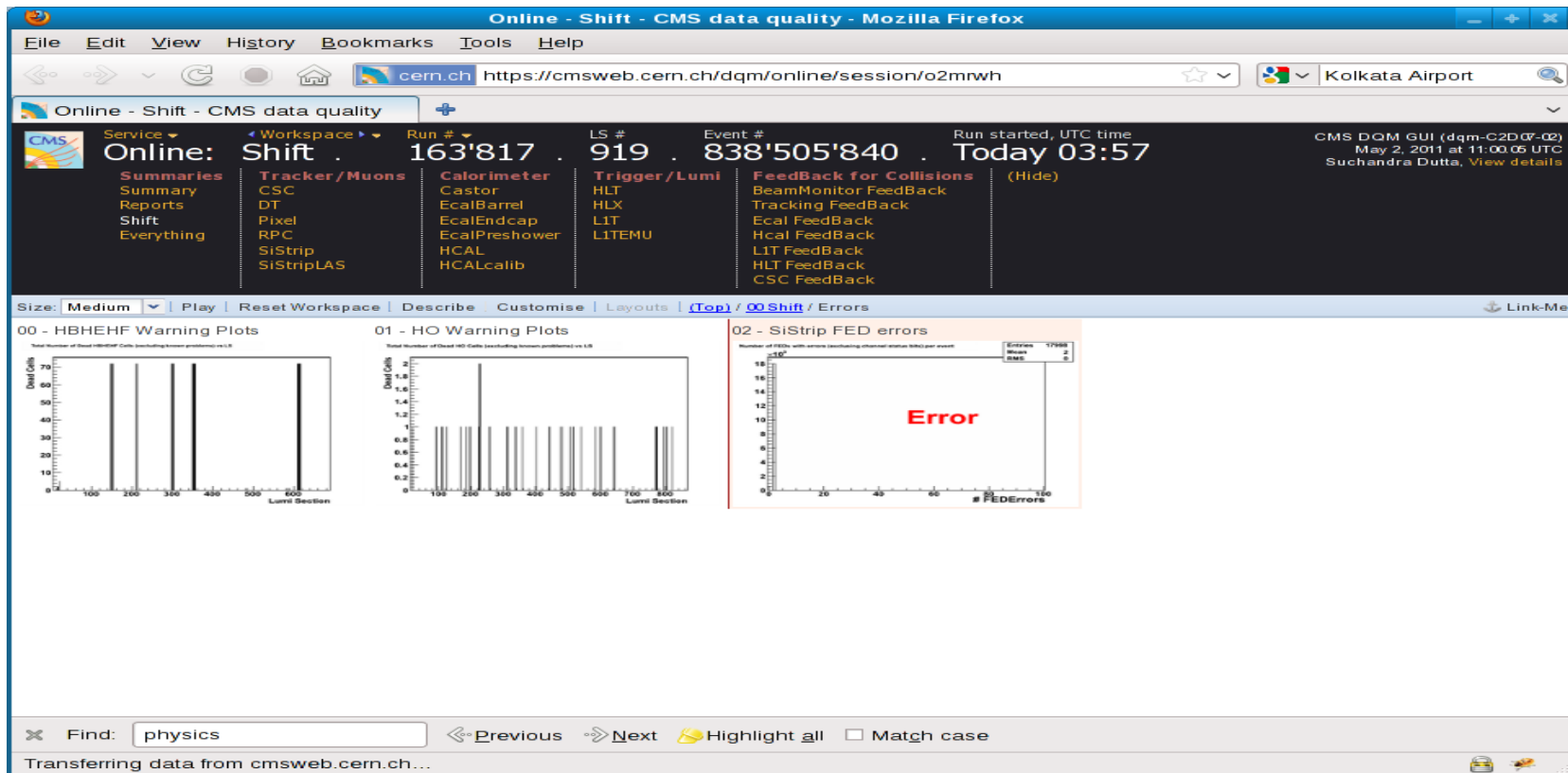
05 Occupancy Trigger Primitives EE -

06 Clusters Energy EE +



DQM GUI: 'Errors' folder

Keep this page always open



Inspect Error plots (Online GUI -> Work Space -> Shift -> Errors)
 They show plots that indicate serious errors, detected automatically.
 Please read sub-system short term instruction about the evaluation.



Online Run Registry

You need your **NICE password** to log in!

Run Registry collects automated run summary and information filled by the DQM-shifters. Data quality and Comments.

There are two tables in the Online Run Registry:

- Run Summary
- Selected Runs

Common Online Shift taker actions:

- Determine whether run is deemed significant, for example using **Triggers** column or **Duration** column (consult shift information).
- Click a row to select it and enable more buttons:
 - Click **Details** to view meta information.
 - Click **Create Run** to bring up interface to start Online certification.

Additional help:

- Click a row to select it and enable more buttons:
 - Click **Details** to view meta information.
 - Click **Manage->Edit** to return to certification screen.
 - Click **Move->to SIGNOFF** when done with certification.

Buttons in Run Summary table

- Click **Lumi Sections** to view a table that shows distinct lumi section ranges for all runs (or the selected run).

Subsystem (i.e. component) text and color codes in Selected

Hover over the quality flag to see the comment



Online RR: Run Summary → Selected Runs

The Run Summary table contains information that is automatically entered by RR.

All Runs are entered in this table, from very short runs w/wo beam, to long runs with stable beam.

'Significant runs' to be examined are moved automatically by RR to the Selected Run table.

* The new runs which appear in the Selected Run table have “Open” states.

* After examined a run and the results are entered, then move the state to “Signoff” by a DQM shift person.

If, for some reasons, a 'significant run' does not appear in the Selected Run table (after waiting some time), then one can move the run manually by selecting the run in Run Summary, then clicking on “Create Run”.

CMS DQM Run Registry (GLOBAL) Valdas

Online Application (3.0.1)

Run Summary **Run# 184905** Refresh | Configure | Export 181,642 items

Number	Run Exists	Dataset Exists	Triggers	Started	Stopped	LS count	B1 stable?	B2 stable?	LHC fill	LHC energy	Castor in?	CSC in?	DAQ in?	DQM in?	DT in?
184907	✗	✗		Mon 13-02-12 10:24:41	Mon 13-02-12 10:26:36						✓	✓	✓	✗	✓
184906	✗	✗									✗	✗	✗	✗	✗
184905	✗	✗		Mon 13-02-12 10:19:58	Mon 13-02-12 10:23:44						✓	✓	✓	✗	✓
184904	✗	✗									✗	✗	✗	✗	✗
184903	✗	✗									✗	✗	✗	✗	✗
184902	✗	✗									✗	✗	✗	✗	✗
184901	✗	✗		Mon 13-02-12 09:48:17	Mon 13-02-12 09:59:40						✗	✗	✓	✗	✗



Run Registry: Editing a run

CMS DQM Run Registry - Mozilla Firefox

File Edit View History Bookmarks Tools Help

CMS DQM Run Registry

cern.ch https://cmswmbm2.web.cern.ch/cmswmbm2/runregistry/editRun.jsf

CMS DQM Run Registry (GLOBAL) Valdas Rapsevicius (SHIFT) @P5 Workspace Tools Support Logout

Reference

Run Summary

B-field	0.01904639957544803694
B1 stable?	
B1?	
B2 stable?	
B2?	
BPix on?	
Booked	2012-02-13 09:19:58.637317
CSC in?	true
CSC+ on?	
CSC- on?	
Castor in?	true
Castor on?	
Class	
DAQ in?	true
DQM in?	false
DT in?	true
DT+ on?	
DT- on?	
DT0 on?	
Dataset Exists	false
Dataset Id	
Duration	226
EB+ on?	
EB- on?	
ECAL in?	true
EE+ on?	
EE- on?	
EFED in?	false
ES in?	true
ES+ on?	
ES- on?	
End Lumi	0

Edit run# 184905, GLOBAL dataset 'Global/Online/ALL' Back to Index

Run# 184905

Run class: Cosmics

Run stop reason:

GLOBAL dataset 'Global/Online/ALL'

Comment:

Components

Castor	STANDBY	UNDEF	
Csc	STANDBY	UNDEF	
Dt	STANDBY	UNDEF	
Ecal	STANDBY	UNDEF	
Es	STANDBY	UNDEF	
Hcal	STANDBY	UNDEF	
Hlt	GOOD	UNDEF	
L1t	GOOD	UNDEF	
Pix	STANDBY	UNDEF	
Rpc	STANDBY	UNDEF	
Strip	STANDBY	UNDEF	

Status with trailing * (star) indicates a required comment.

Save Reset Cancel

Castor comment: This is a comment

Press ESC to close and apply.

Help

Common Shift taker actions:

- Select component status (e.g. GOOD, BAD) from drop-down menu for each component. If selecting BAD, then a comment must also be entered.
- If available, select cause (or reason) from the second drop-down menu for each component.
- Click Save to save the information to the database and return to the main screen.

Additional help:

- Run class : the Run Class will usually be set correctly automatically but can be changed in consultation with shift leader or DQM on-call.
- Click Back to Index to return to the main screen without saving.
- Hide the reference information on the far left by clicking Support->Hide reference.

Reference Panel

Run class

Stop reason

General comment

Components

Component information:

- Status (restricted list)
- Cause (restricted list)
- Comment (free text)

Help Panel



Run Registry: Moving a run to 'SIGNOFF'

- After the run:
- Enter the 'stop reason' (in the stop reason field, NOT under comments)
- The certification results must be confirmed by the shift leader, before the status of a given run is moved to « SIGNOFF »
- **Click Run to select it → Move → to SIGNOFF**
- Once the run is in SIGNOFF state, it cannot be modified by the Online shifter.

Run Number	Run Class Name	Dataset State	Last Shifter	Castor	Csc	Dt	Ecal	Es	Hcal
183320	Commissioning11	SIGNOFF	Valdas Rapsevicius	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF
183317	Commissioning11	SIGNOFF	Mihee Jo	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF
183264	Commissioning11	SIGNOFF	Mihee Jo	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF
183262	Commissioning11	OPEN	Valdas Rapsevicius	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF
183253	Commissioning11	SIGNOFF	Mihee Jo	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF

Selected Runs **Run# 183262** [Details] [Manage] [Move] Refresh | Configure | Export 9,538 items. Show 5 from

to OPEN
to SIGNOFF
to COMPLETED



Run Registry: Run Classification

- Assigning correct Run class is of vital importance as it will affect Offline determination of Runs to be used for different analyses

Selected Runs Refresh | Configure | Export 9,538 items. Show 15 from 31 to 45. Page 3 / 636

Run Number	Run Class Name	Dataset State	Dataset Created	Last Shifter	Castor	Csc	Dt	Ecal	Es	Hcal	Hit	L1t
183074	Commissioning11	SIGNOFF	Tue 06-12-11 23:36:51	Aleko Khukhunaishvili	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF!	UNDEF	UNDEF	UI
183072	Commissioning11	SIGNOFF	Tue 06-12-11 23:32:41	Aleko Khukhunaishvili	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF!	UNDEF	UNDEF	UI
183071	Commissioning11	SIGNOFF	Tue 06-12-11 23:29:22	Aleko Khukhunaishvili	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF!	UNDEF	UNDEF	UI
183069	Collisions11	SIGNOFF	Tue 06-12-11 21:41:30	Serguei Petrushanko	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UI
183068	Collisions11	SIGNOFF	Tue 06-12-11 21:00:22	Serguei Petrushanko	UNDEF	UNDEF!	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UI
183067	Commissioning11	SIGNOFF	Tue 06-12-11 20:50:38	Serguei Petrushanko	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UNDEF	UI
183063	Commissioning11	SIGNOFF	Tue 06-12-11 20:29:09	Serguei Petrushanko	UNDEF	UNDEF!	UNDEF!	UNDEF	UNDEF!	UNDEF	UNDEF	UI
183062	Commissioning11	SIGNOFF	Tue 06-12-11 20:20:31	Serguei Petrushanko	UNDEF	UNDEF!	UNDEF!	UNDEF	UNDEF!	UNDEF	UNDEF	UI
183060	Commissioning11	SIGNOFF	Tue 06-12-11 19:21:03	Serguei Petrushanko	UNDEF	UNDEF!	UNDEF!	UNDEF	UNDEF!	UNDEF	UNDEF	UI

- "Collisions" if the run is taken for physics analysis purposes and contains at least one lumisection with two stable beams (colliding or non-colliding).
- "Cosmics" if the run is taken for analysis purposes with cosmic triggers with at least one muon system + Tracker in DAQ with HV on and there is no beam activity throughout the run, i.e. stable "no beam" conditions
- "Commissioning" for all other runs, i.e. those taken for tests or specific detector studies only, i.e. not meant for general offline physics analysis.

Runs are classified automatically by RR. In case of doubt, ask the shift leader

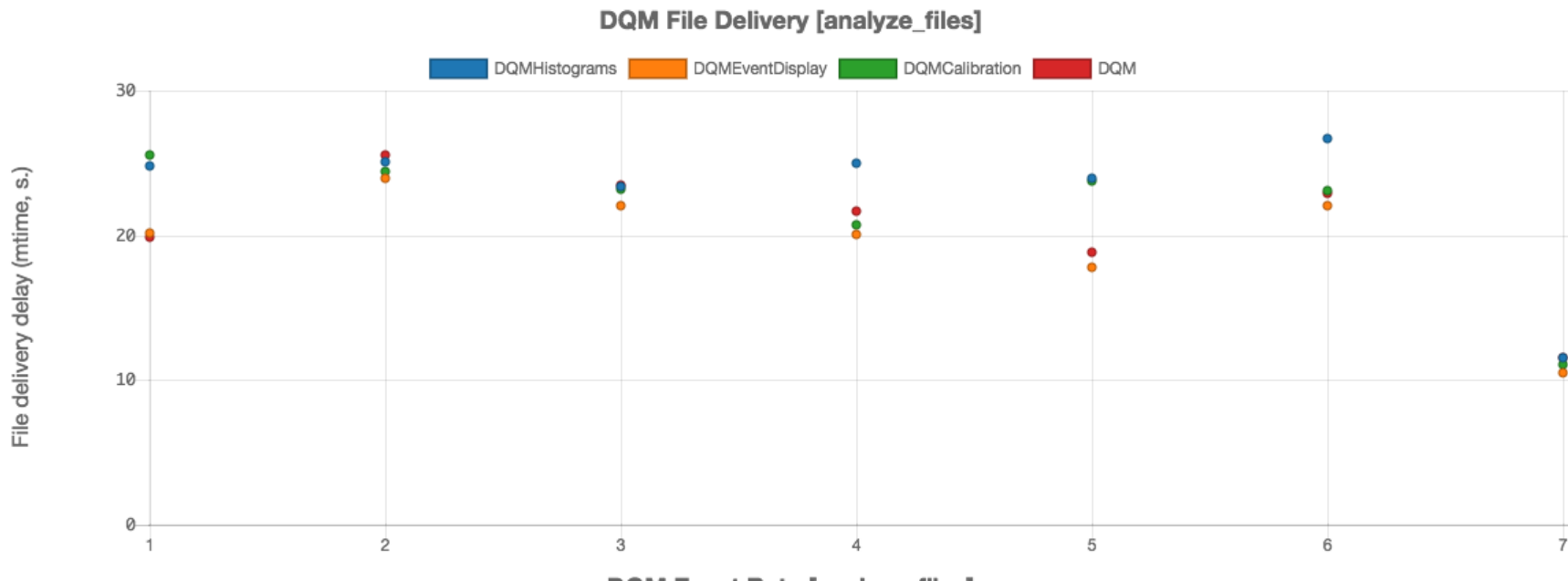


DQM²: DQM file delivery delay

https://twiki.cern.ch/twiki/bin/view/CMS/OnlineDQMShifts#Things_to_do_during_your_shift [3]

DQM² Runs fu-c2f11-11-01 size: 68.65 mb live

Run 289976 / File delivery graph hide use ctime / Accepted events graph hide / make stats!



- A delay of 2-6 lumisections is normal and corresponds to 40s-150s.
- A higher delay is not normal. As soon as the delay is higher than 500s, it's time to act.
- Check the delay for each 'selected' run, and note it in the end of shift summary.



DQM²: DQM applications' status

DQM² **Runs** fu-c2f11-11-01 size: 69.08 mb live

Run 290103 / Known cmssw jobs hide / Legend: running stopped crashed

Timestamp (34)	Hostname	Pid	State	Tag ^	LS	RSS	Total Ev.	Actions
2017-03-27 10:40:05	fu-c2f11-11-01	107450	R	beam	1	274 mb	0 (evt/s)	
2017-03-27 10:40:05	fu-c2f11-11-01	107449	R	beampixel	1	300 mb	0 (evt/s)	
2017-03-27 10:40:05	fu-c2f11-11-03	90009	R	bril_clientPB	0	180 mb	0 (evt/s)	
2017-03-27 10:40:05	fu-c2f11-11-01	107459	R	castor	1	236 mb	0 (evt/s)	
2017-03-27 10:40:05	fu-c2f11-11-01	107468	R	csc	1	798 mb	0 (evt/s)	
2017-03-27 10:40:05	fu-c2f11-11-01	107463	R	ctpps	1	261 mb	0 (evt/s)	
2017-03-27 10:40:05	fu-c2f11-11-01	107457	R	dt	1	449 mb	0 (evt/s)	

- Each line represents a sub-system application that is running on the data to generate your plots.
- At the beginning of each run all these applications are restarted.
- If during the run you see that a line turns red, it means that the data is making that application crash. This also means that for that sub-system you will have no plots in the DQM GUI.

- 1) Alert the shift leader
- 2) Alert the DQM On-call
- 3) Make a problem report in the Elog



E-log

- Log in with your NICE account
 - Click on "Elog" and choose Subsystems -> "Event Display and DQM"
 - **Problem Report (1 entry per problem)**
 - For each problem arising during your shift make a "Problem Report" entry
 - **Please use "Elog" to report problems!**
 - **Shift Summary (1 entry per shift)** → an example below
 - Summarize the run numbers you checked during your shift
 - [During collision runs check histograms every hour and make an entry in this elog](#)
- No need to create e-logs for each run. Make sure run-by-run information entered in the Run Registry correctly

An example of "shift summary" entry in e-log

Signed-off runs:

229762 - Collisions15 - Delay ~90s - Night run, inherited from previous. Stable beams.
229778 - Commissioning15 - Delay ~45s - ECAL out to investigate calibration problems. Circulating beams.
229787 - Commissioning15 - Delay ~65s - ECAL back in. Half of CSC HV off. Varying beams, varying rates.
229793 - Commissioning15 - Delay ~45s - No beams. Still CSC- off.

In general a quite shift. Next shifter, watch out for HCAL occupancies.



DQM Shift Instruction: How to evaluate Histograms

➤ The description of the shift histograms can be found here:

<https://twiki.cern.ch/twiki/bin/view/CMS/DQMShiftHistograms> [5]

- Reference histograms given per subsystem for **Online and Offline DQM**.

Description of DQM Shift histograms

Contents

- Description of DQM Shift histograms
 - Online
 - Offline DQM

Useful Links

➔ **Online**

- Data, format, integrity, checks
- (DPG)
 - CSC
 - DT
 - **ECAL parameters**
 - Hcal
 - Pixel
 - RPC
 - SiliData
 - Tracker
 - Tracker Emulation
 - Tracker I&T

➔ **Offline DQM**

- (DPG)
 - CSC Offline DQM
 - DT Offline DQM
 - ECAL parameters Offline DQM
 - I&T Offline DQM
 - Hcal Offline DQM
 - Tracker Offline DQM
 - Tracker Emulation Offline DQM
 - Pixel Offline DQM
 - SiliData Offline DQM
 - RPC Offline DQM
- more systems to come here (please click on page, title and naming convention as given here)

➔ **(POG)**

- Muon Offline DQM
- VERBLET Offline DQM
- Luminosity Offline DQM
- more systems to come here (please click on page, title and naming convention as given here)

List of Shift Histograms

ECAL DQM report summary

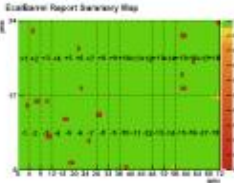

Description: the histogram shows, for each 5x5 crystals matrix, the fraction of good channels / 25. The goodness of the crystal is decided based on the results of many analysis on it. The grid with numbers delimit different readout units (supermodules in barrel, sectors in endcap). They are known as FEDs

Legend:

green : status = [95-100]%
 yellow : status = [85-95]%
 red : status = [0-85]%
 white : not being readout (not in DAQ)

Evaluation criteria: The overall % of the subsystem should be more than 98% and different regions in the 2D plot should be Green. Red or Yellow regions in the histogram would represent problems

Subsystem Evaluation and Action: If one FED has a % less than 95%, the reason has to be identified in the plots below and a commented. If it is lower than 85%, the ECAL stuffer should be contacted. The same if the overall status of the subsystem is lower than 85%

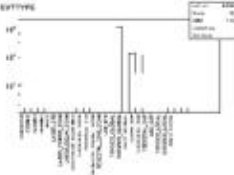
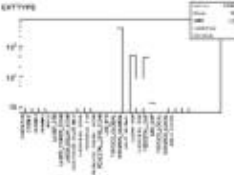
60 Event Type

Description: Frequency of the event types found in the DQM event-stream

Evaluation criteria: If the calibration sequence is ON, histograms should show entries in "COSMICS_GLOBAL", "LASER_GAP", "PEDESTAL_GAP" ("LED_GAP" also in the case of Endcap).

Subsystem Evaluation: If only cosmics is filled, or proportions different from reference, data are still good.

Action Items: If the calibration sequence is ON, but only "COSMICS_GLOBAL" is filled, contact the central trigger shifter and check the calibration rate (normally 100 Hz)


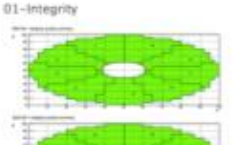
81 Integrity Summary

Description: quality summary checking that data for each crystal follows all the formatting rules and all the constraints which are dictated by the design of the electronics.

green : good red : bad yellow : no entries

Evaluation criteria: It should be all green.

Subsystem Evaluation: a single crystal (a pixel in this scale) with integrity errors is not a problem. This will be skipped in reconstruction. Regions with concentrated red events are problems because of the trigger board, are



Part 4: Summary



Shift Hand-over

- Make sure to arrive 5-10 minutes early for shift hand-over.
- Upon your arrival in the control room, the previous shifter will be there
- Get from her/him the information about the current status of the data taking and what happened during the previous shift.
- The shift person will show you where the tools are running, which you will be using (DQM GUI, CMS Online page, Run Registry).
- Make sure you have logged in to all the tools (ELOG, RR) as yourself!
- If anything with your tasks is not clear, ask at that moment!
- At the end of your shift, wait for the next shift person to arrive and provide the same support



LINKS

Shift instructions:

<https://twiki.cern.ch/twiki/bin/view/CMS/DQMShiftInstructions>

DQM Online GUI:

<http://cmsweb.cern.ch/dqm/online/>

Follow the link specified in the online shift instruction page

Run Registry:

OnlineShift Usage : <https://cmswbm2.web.cern.ch/cmswbm2/runregistry/>

Follow the link specified in the online shift instruction page

E-log:

https://cmsonline.cern.ch/webcenter/portal/cmsonline/pages_common/elog



Final Reminders

From now to your shift:

- Get familiar with the DQM TWiki page:

<https://twiki.cern.ch/twiki/bin/view/CMS/DQMShiftInstructions>

and links therein.

- **Shift Histograms** by sub-system

Shortly before each shift you MUST read :

- **Short term** instructions

Read Commissioning and DQM Announcements HN

- Read DQM and Shift-leader E-log of the shift before yours to be aware of the recent activity

- Don't forget to have a shift-leader and DQM on-call phone #s with you.

Thank you !

