

Welcome to the  
Run-2 Shift Training

# General Introduction for all shifters

v.2.4

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February 25<sup>th</sup> 2014

Acknowledgement:

Alina C.R. ,Thilo, Stephanie

## Outline:

- Some general information on ATLAS
- General Information about this training
- Control Room Desktop and Shift Tools
- Overall operation and preparation for Run-2
- Schedule: Preparation and Milestone 8 (February 2<sup>nd</sup> onwards)

# Introduction

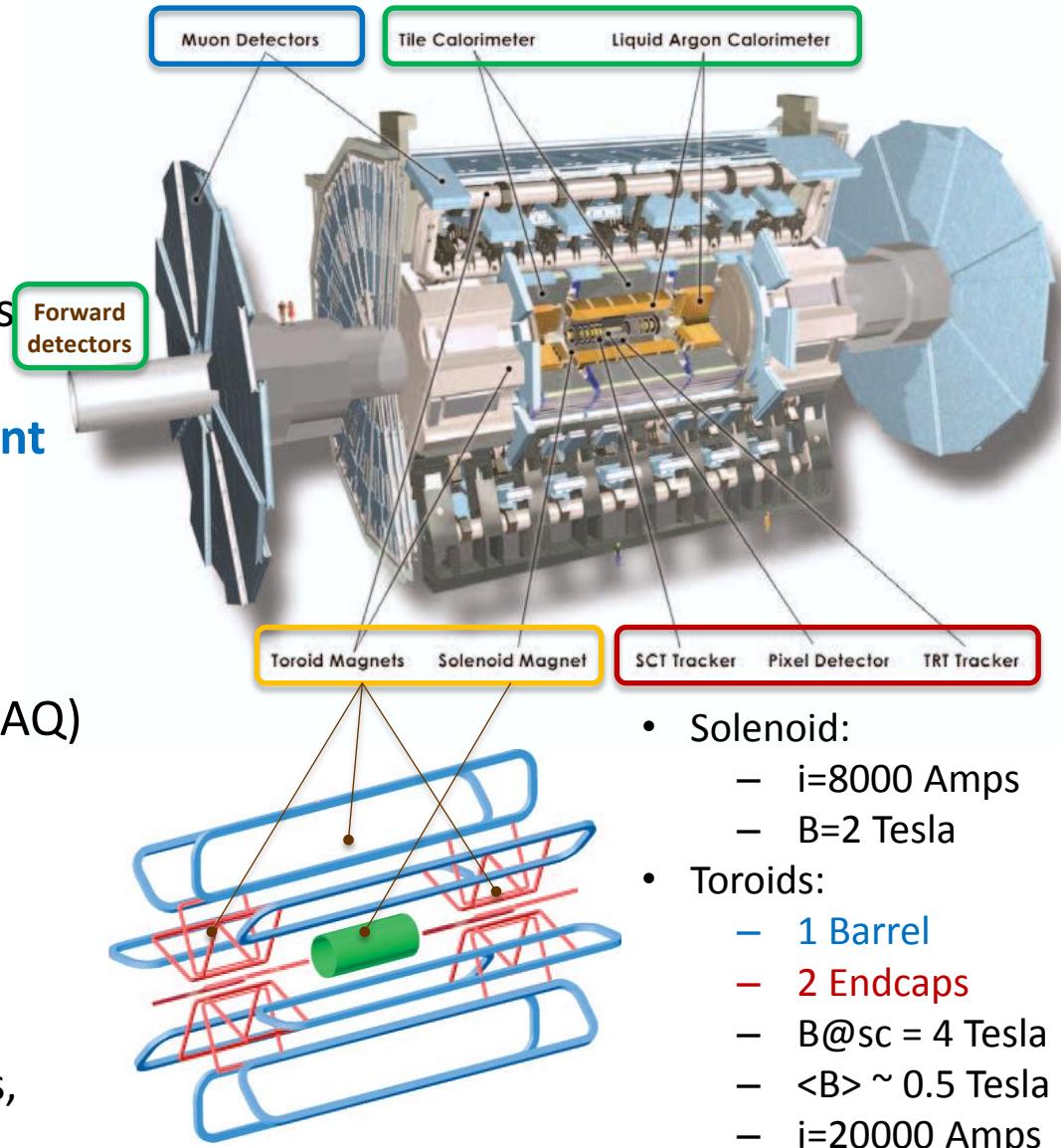
# ATLAS

## ATLAS (A Toroidal ApparatuS)

- Diameter 25 m; Length : 46 m
- Barrel toroid length 26 m
- Overall weight 7.000 tonnes
- $\sim$  100 million electronic channels
- $\sim$  3.000 km of cables

Several systems needed for coherent operation and physics data taking

- Sub-Detectors
  - Inner Detector, Calorimeters, Muons, Forward detectors
- Trigger and Data Acquisition (TDAQ)
- Detector Control System (DCS)
- Data Quality (DQ)
- Data Storage and Offline Computing
- Services and infrastructure:
  - Power, Gas, Cooling, Cryogenics, ...  $\rightarrow$  Safety Operation



- Solenoid:
  - $i=8000$  Amps
  - $B=2$  Tesla
- Toroids:
  - 1 Barrel
  - 2 Endcaps
  - $B@sc = 4$  Tesla
  - $\langle B \rangle \sim 0.5$  Tesla
  - $i=20000$  Amps

# Atlas Control Room Layout

Run-2:  
8 Class-1  
Shifters

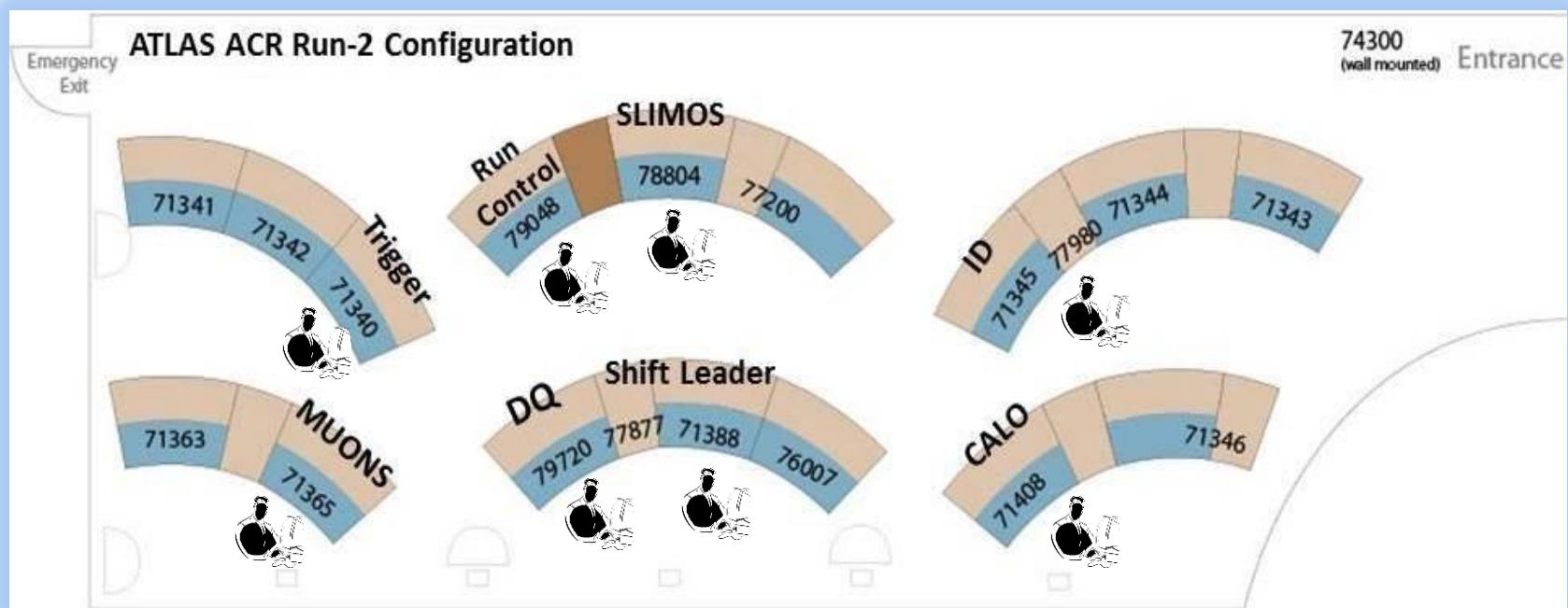
## Run-2 Operation: Shift Model

- 3 detector desks (ID, CALO+FWD, MUONS)
- 3 central tasks (Run Control, Trigger, Central Data Quality)
- Shift Leader + SLIMOS
- Supporting Doc:
  - EDMS Document: <https://edms.cern.ch/document/1348082/1>
  - Twiki: <https://atlasop.cern.ch/twiki/bin/view/Main/Run2Preparation>

A. Polini

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ATLAS Weekly, 22 July 2014



# Shift Tasks (i)



## Shift Leader

- Main responsible in the ATLAS Control Room (ACR), supervising all experiment activities
- Ensure the run plan is followed (cosmics, physics, calibration)
- Direct contact to CCC (Cern Control Center) for ATLAS-LHC beam handshake, Run Manager/Run Coordinator

## Run Control Desk

- Ensure the Experiment is smoothly running (during and before Physics)
- Run Control (Run start/stop , busy monitoring, Removal/Recovery, Shifter Assistant)
- Global TDAQ infrastructure
- Auxiliary partitions:  
OLC (Online Lumi Calculator), L1CT (Central Trigger Processor) etc.

## Trigger Desk

- Trigger Configuration (set Trigger Keys)
- Trigger and Trigger Detectors Monitoring

## Data Quality Desk

- Central Data Quality, Global Monitoring
- General Timing, Trigger vs Lumi, Occupancy
- Luminosity Monitoring
- ADC (Atlas Distributed Computing) Monitoring

# Shift Tasks (ii)



## 3 Detector Desk

1. **Inner Detector Shifter**  
(IBL/PIX, SCT, TRT, BCM, DBM)
2. **CALO Detectors Shifter**  
(LAr, TILE, Fwd)
3. **MUON Detectors Shifter**  
(CSC, MDT, RPC, TGC)

## Duties:

- Ensure proper DAQ/DCS detector configuration
- Follow up problems, solving or contacting experts/system coords.
- Monitor Detector DQ aspects
- Take Calibration Runs



## Shift Leader in Matters of Safety (SLIMOS)

- Safety Aspects
- Cavern Access
- Common Infrastructure (Power, Cooling, Cryo, Gas...)

# How the training is organized

- **2 full days here at P1**
- **Today:**
  - General session for all shifters
  - Global concepts ATLAS, LHC, TDAQ, DCS, DQ
  - Shift Leader (4pm)
- **Tomorrow Morning:**
  - Run Control/Trigger in this room
- **Tomorrow Afternoon:**
  - Parallel Sessions:
  - The 3 detector desk and DQ/Lumi
- **Please note:**
  - Material still being developed
  - Experiment commissioning still ongoing
  - Training will cover all aspects, but some parts won't be operational and/or are being commissioned.
  - **PLASE NOTE: Your Input is very important to the documentation and the procedures**

<https://indico.cern.ch/event/359341>

Link to all ATLAS Shift Trainings in 2015

1 January 2015  
CERN  
Europe/Zurich timezone

Overview

Scientific Programme  
Timetable  
Contribution List  
My Conference  
Video Services

This page is a placeholder for the 2015 Shift Training

Please use the following link (and register) for the 1st shift training (Jan 28-29 2015)

- <https://indico.cern.ch/event/359836/>

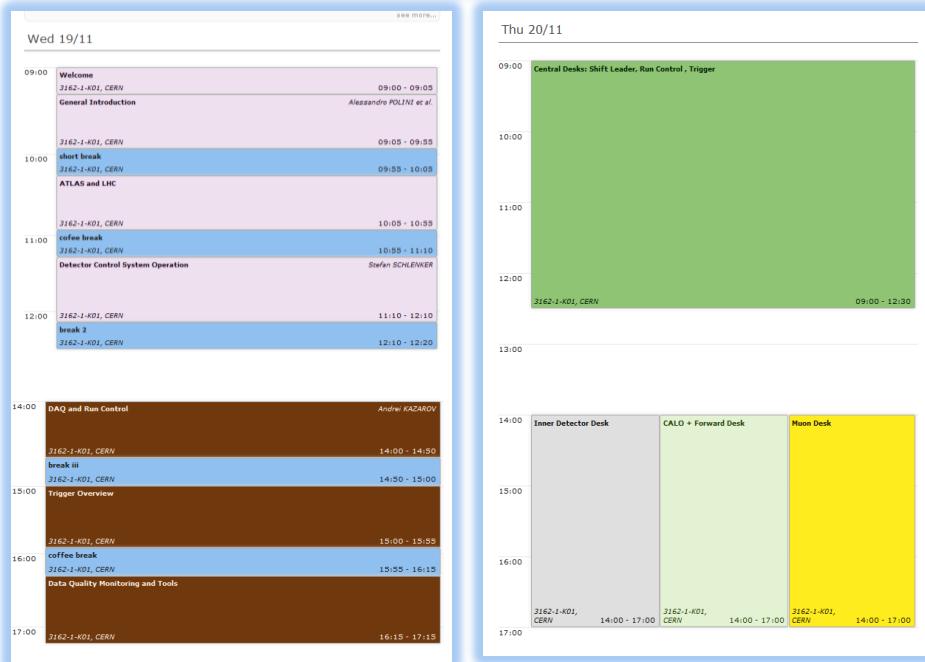
Please use the following link (and register) for the 2nd shift training (Feb 25-26 2015)

- <https://indico.cern.ch/event/359831/>

More Training Sessions will follow.

When registering for Shifts please send ALSO an email to the Shift Desk Contact

- [atlas-run-coordinators@cern.ch](mailto:atlas-run-coordinators@cern.ch) for Shift Leader.
- For the other desks see the contacts in:  
<https://atlasop.cern.ch/twiki/bin/view/Main/M8ShiftTraining>



# ATLAS Operation Shift Desk and Tools

# P1 Access and Login

To enter the ATLAS control Room:

- You need to have “ATL\_CR” access
- You can request it on:  
→ <http://edh.cern.ch>  
(need to attend SIR e-courses) and check it  
→ <http://adams.web.cern.ch>

The screenshot shows the ADaMS interface with the title 'ADaMS'. In the top right, there are links for '(APOLINI) | Help | Logout'. Below the title, there are tabs: 'Personal', 'Requests and Exceptions', 'Access to Zones' (which is highlighted in blue), and 'Access to Accelerators'. Under 'Access to Zones', the section 'POINT 1 LHC/LEP' is shown. A table lists buildings, zone codes, access status, short descriptions, and various status indicators. One row is highlighted: '3162 ATL\_CR ✓ ATLAS CONTROL ROOM'. To the right of this table, there is a section titled 'Required Safety Courses' with a table listing course descriptions, codes, and links.

| Buildings | Zone Code | Access Granted?<br>(click for details) | Short Description  | Contract | Card | EDH Request | Dosimeter | Courses | Exception | Role |
|-----------|-----------|--|--------------------|----------|------|-------------|-----------|---------|-----------|------|
| 3162      | ATL_CR    | ✓                                      | ATLAS CONTROL ROOM | ●        | ●    | ●           | ●         | ●       | ●         | ●    |

| Description              | Course Code | Jump                                   |
|--------------------------|-------------|--|
| Level 4A (ATLAS)         | COURAT      | SIR - Follow it <a href="#">here</a> . |
| CERN Safety Introduction | COURHSE     | SIR - Follow it <a href="#">here</a> . |
| Safety during LS1        | COURLS1     | SIR - Follow it <a href="#">here</a> . |

Point 1 login:

- ACR shift computers have desk logins w/o passwords (see control room desktop)
- Actions/Elog/DCS etc. need a real P1 username though, this normally exists already or is created when shift is booked  
→ [https://atlasop.cern.ch/sysadmin/ldap\\_roles/roles\\_enable.php](https://atlasop.cern.ch/sysadmin/ldap_roles/roles_enable.php)
- “Shift Roles” are “assigned” prior to shifts and “enabled” during the shift period.
- P1 network is detached from CERN GPN
  - From P1 to CERN: ssh -XY atlasgw-exp
  - From CERN to P1: ssh -XY atlasgw
- Wifi (for laptops) is connected to CERN GPN

The screenshot shows the 'P1 Roles' interface with a title bar 'P1 Roles' and buttons for 'Home', 'Request', and 'Confirm'. Below the title, it says 'Roles Manager/ Enable-Disable'. There are two main sections: 'User list' and 'Role list'. Both sections have search bars and filter buttons. The 'User list' contains a table of users with their names and roles. The 'Role list' contains a table of roles, with some specific ones highlighted in green.

| User                             |
|----------------------------------|
| aabdalla - Ali Abdallah          |
| aabdelal - Ahmed Ali Abdelalim   |
| aad - Georges Aad                |
| aafshari - Arya Shahrooz Afshari |
| aagaard - Brian Petersen         |
| aahmad - Ashfaq Ahmad            |
| aakimov - Andrei Akimov          |
| aalonso - Alejandro Alonso Diaz  |

| Role              |
|-------------------|
| ATLAS:ShiftLeader |
| ATLAS:observer    |
| DCS:TIL:expert    |
| TIL:shifter       |

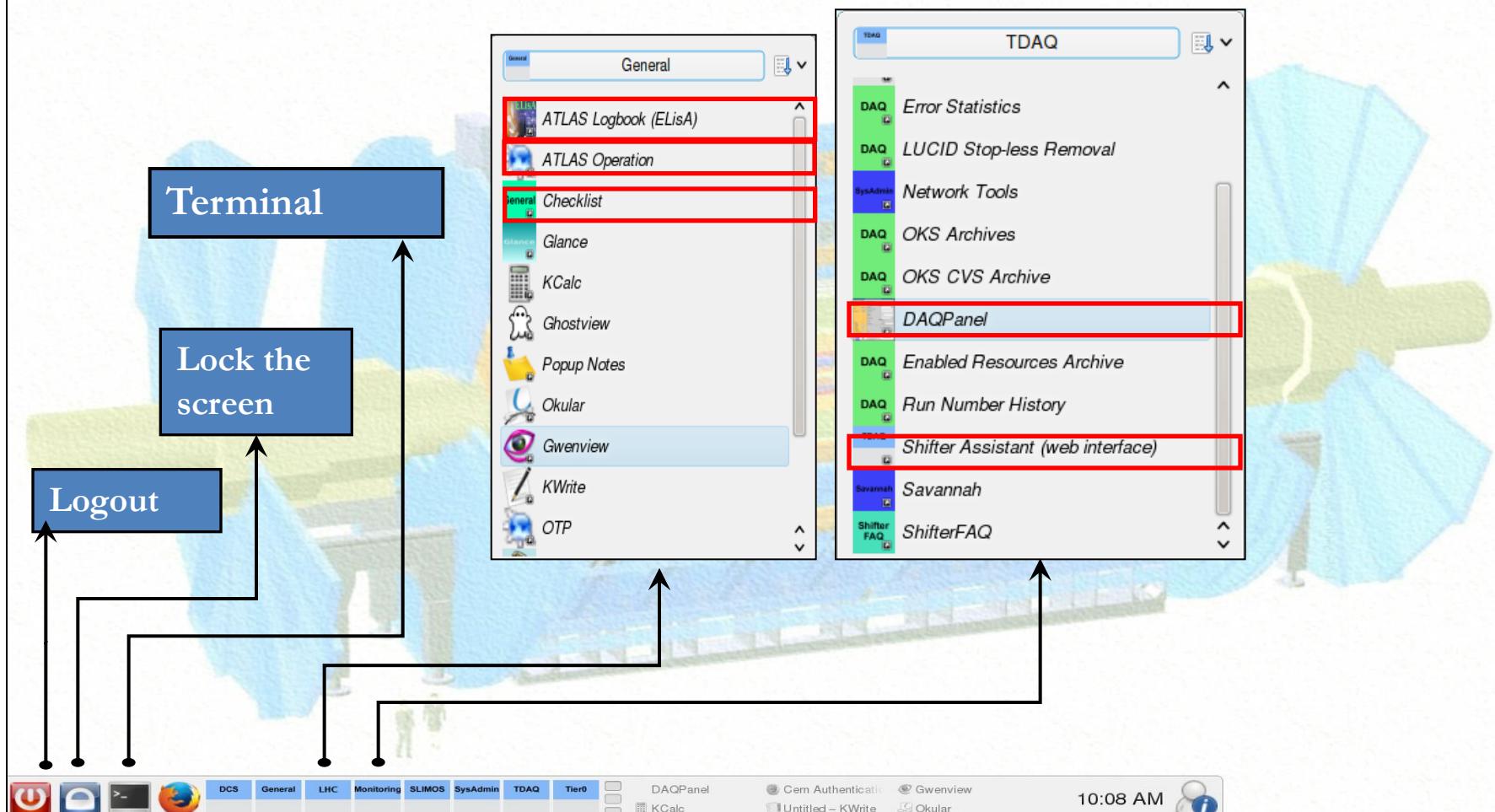
# The Control Room Desktop

- The **Control Room Desktop (CRD)** is the user interface to operate in the ATLAS control rooms
- It gives all the users a *common, easy to use but controlled* environment
  - The desktop itself is a *guide* for the user offering him all the tools he/she needs
    - No need for the user to know by heart application names, web links, etc.
- User privileges are taken into account
  - The *CRD* takes care of checking user privileges using the access management system in place at P1
    - You may not be allowed to use some tool

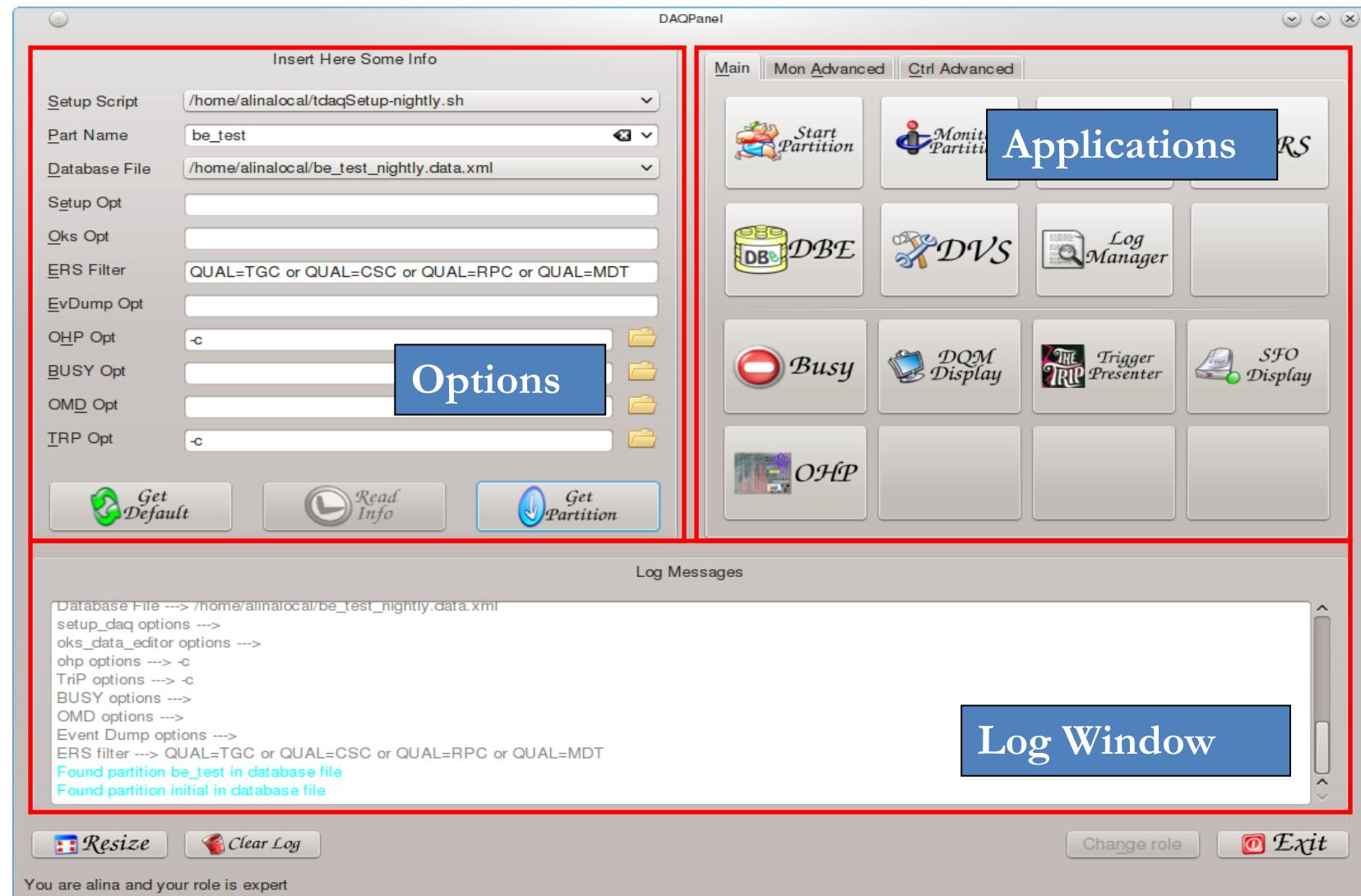
# The Control Room Desktop

Every desk has its own CRD configuration!

*ATLAS Control Room*



# The DAQ Panel



# The DAQPanel

The screenshot shows the DAQPanel application window. On the left, there is a configuration panel with fields for 'Setup Script' (set to 'Browse'), 'Part Name' (set to 'be\_test'), 'Database File' (set to 'Browse'), and several other optional parameters like 'Oks Opt', 'ERS Filter' (set to 'QUAL=TGC or QUAL=CSC or QUAL=RPC or QUAL=MDT'), 'EvDump Opt', 'OHP Opt' (set to '-c'), 'BUSY Opt', 'OMD Opt', and 'TRP Opt' (set to '-c'). Below these are buttons for 'Get Default', 'Read Info', and 'Get Partition'. A status message at the bottom left says 'Backing up the initial environment... Done!'. At the bottom are buttons for 'Resize', 'Clear Log', 'Change role', and 'Exit'. On the right side of the window, there are icons for 'Main', 'DBE', 'DVS', and 'Log Manager'. A blue callout box labeled '1' points to the 'Setup Script' field with the text: 'Select the setup script (/det/tdaq/scripts/setup\_TDAQ.sh will always point to the production release)'. A blue callout box labeled '2' points to the 'Part Name' field with the text: 'Select the partition db file (i.e., /atlas/oks/tdaq-05-05-00/combined/partitions/ATLAS.data.xml)'. A blue callout box labeled '3' points to the 'Get Partition' button with the text: 'Get the partition(s) described in db (the Part Name list will be automatically filled)'. A blue callout box labeled '4' points to the 'Read Info' button.

1 Select the setup script  
(/det/tdaq/scripts/setup\_TDAQ.sh  
will always point to the production  
release)

2 Select the partition db file  
(i.e., /atlas/oks/tdaq-05-05-  
00/combined/partitions/ATLAS.data.  
xml)

3 Get the partition(s)  
described in db  
(the *Part Name* list will be  
automatically filled)

4 Tell the DAQPanel to  
acquire the information

# Detector Control System

More later in the DCS tutorial

- Monitor and safely operate the experiment by means of an easy and streamlined interface which allows hiding the complexity of the many thousands detector devices

## Finite State Machine

- Inspect and set all detector relevant settings (power, high and low voltages, thresholds, gas, cooling, etc.)
- Bring the detector from SHUTDOWN to STANDBY to READY state for PHYSICS data taking

## Alarm Screen

- Present all detector and infrastructure severity conditions OK, WARNING, ERROR, FATAL



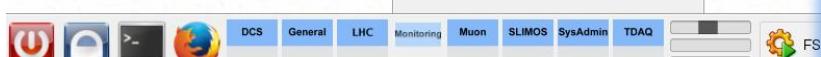
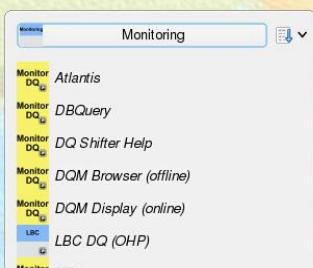
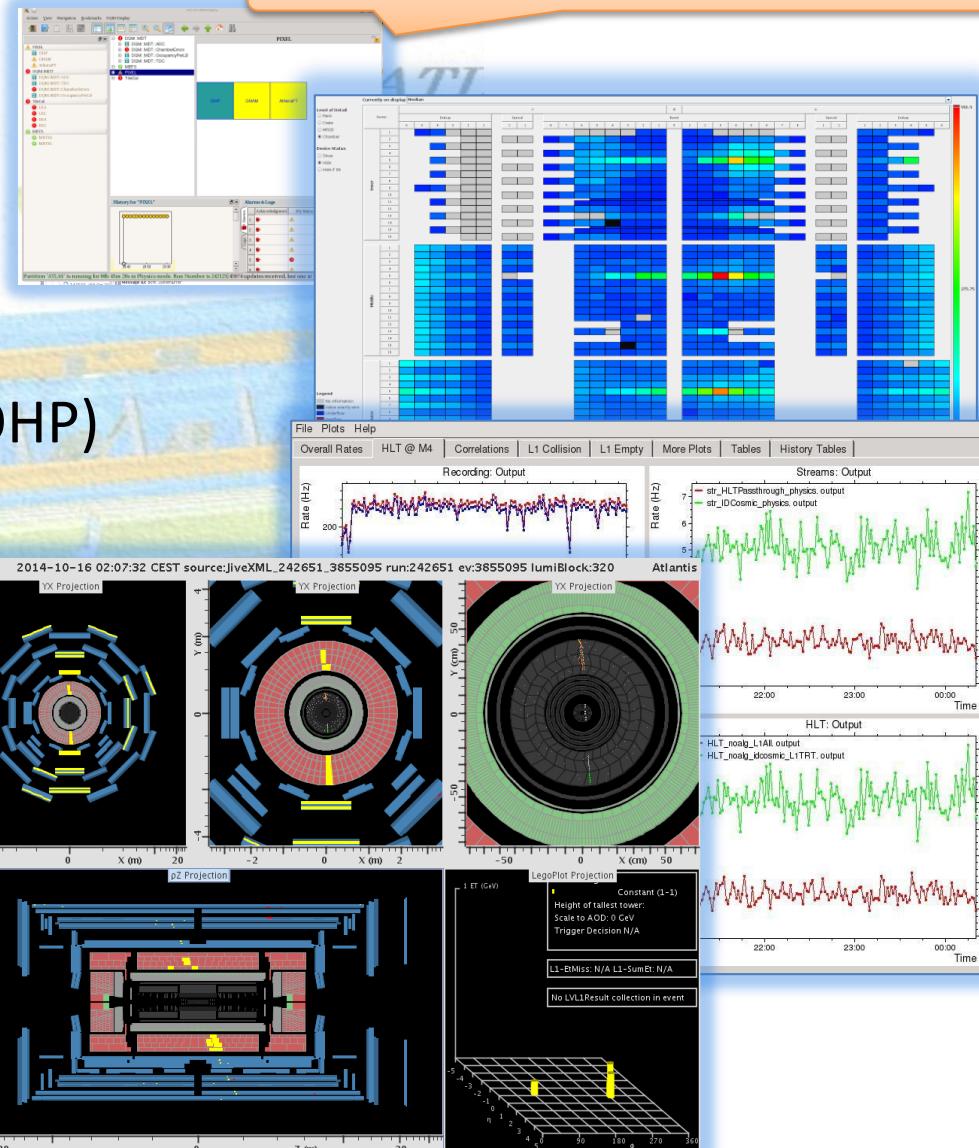
- All detector desks have their own DCS view and tools
- More on the DCS in the dedicated lecture later and detector details and implementation in the detector tutorials

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# Online Monitoring

More later in the DQ tutorial

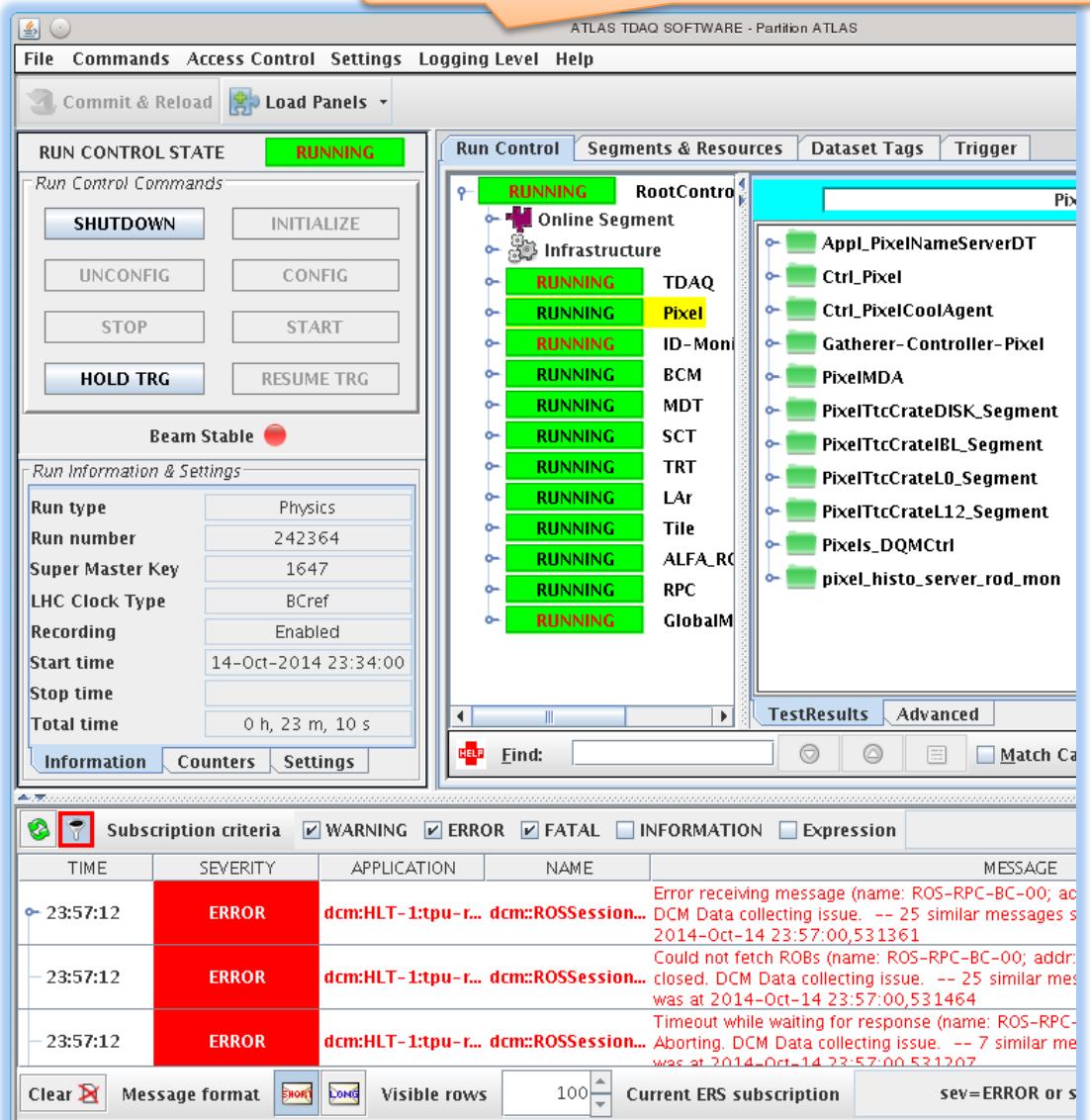
- Online Monitoring
- Global Monitoring
- Trigger Presenter (TrP)
- Online Histogram Presenter (OHP)
- DQM Display | DQM Browser
- Event Display (Atlantis)
- etc. etc.



# The Run Control Igui

More later in the TDAQ tutorial

- Atlas Trigger and DAQ system is a very large distributed system
- Data taking is controlled/monitored by means of a Run Control IGUI which operates as a Finite State Machine all the processes needed for taking data.
- This tool is used by the Run control shifter to run ATLAS as a whole
- The same tool is used by the detector desks for monitoring and to perform calibration and test runs of their subdetectors.



# The ATLAS Logbook (ELisA)

You are logged in as alina [Logout](#)

[Create new log entry](#)

[ChangeLog v8.0.12](#)

[Contact us @](#) [?](#) [ELisA](#)

Showing 1 to 15 of 499 entries Show 15 entries

|  | Date&Time        | Author                   | Subject                                | Message Type         | System Affected  | Text   |
|--|------------------|--------------------------|--|----------------------|------------------|--|
| <a href="#">246225</a>   | 2014-10-30 09:27 | Tiesheng Dai             | Turn on MDT                            | Default Message Type | DCS, MDT         | Turn on MDT for checking EO chambers. Follow...        |
| <a href="#">246224</a>   | 2014-10-30 08:47 | Stephanie Ulrike Zimm... | R1_TechnicalFault                      | Default Message Type | DSS, Tech. Infra | DS...  |
| <a href="#">246223</a>   | 2014-10-30 08:47 | Stephanie Ulrike Zimm... | Turbine rack interlock script stopped  | Default Message Type | DCS              | I s...   |
| <a href="#">246222</a>   | 2014-10-30 07:09 | Iskander Ibragimov       | Shift Summary for Pixel desk           | Shift Summary        | Pixel            | Shift Summary for Pixel desk Shifter(s): Iskander I... |
| <a href="#">246221</a>   | 2014-10-29 22:53 | Stephanie Ulrike Zimm... | for ID DCS Watcher s...                | Default Message Type | DCS              | Shift Summary for Pixel desk Shifter(s): Laura Fra...  |
| <a href="#">246220</a>   | 2014-10-29 19:11 | Stephanie Ulrike Zimm... | for SLIMOS desk                        | Shift Summary        | SLIMOS           | Start of Shift: ===== ATLAS DSS Alar...                |
| <a href="#">246219</a>   | 2014-10-29 17:27 | Stephanie Ulrike Zimm... | Cooling restored for MDT EO racks, ... | Default Message Type | DCS              | We got the confirmation that the beampipe bakeo...     |
| <b>Custom table views</b>  |                  |                          |  |                      |                  |  |
| <b>Expand message</b>  |                  |                          |  |                      |                  |  |
| <b>On-the-fly filtering: by columns or across cols</b>   |                  |                          |  |                      |                  |  |
| <b>Last 500 entries ~ couple of days</b>   |                  |                          |  |                      |                  |  |
| <p><b>Subject:</b> Cooling restored for MDT EO racks, HV/LV have been put back in operational mode</p> <p>We got the confirmation that the beampipe bakeout has finished and rack cooling for the HO (EO) racks restored. All explicit interlocks on EO HV and LV have been cleared, and the "Latch Off" of CAEN communication via the ResetNet removed.</p> <p>EO chambers have been reincorporated in the JTAG and PS FSM trees in DCS. Please note that a few chambers seem interlocked still due to gas conditions or gas interlock flags asserted by Philipp.</p> |                  |                          |  |                      |                  |  |
| <a href="#">Reply</a>  |                  |                          |  |                      |                  |  |
| <a href="#">Edit</a>   |                  |                          |  |                      |                  |  |
| Thu Oct 30 10:39:59 CET 2014   |                  |                          |  |                      |                  |  |
| <a href="#">Contact us: Bugs, feedback, improvements (access from outside P1 only).</a> Currently supported browsers: Firefox, Safari, IE.   |                  |                          |  |                      |                  |  |

Access ELisA from the CRD General menu

# The ATLAS Logbook (ELisA)

You are logged in as alina [Logout](#)

Flat View Threaded View New Entry Advanced Search

**Message Type:** Shift Summary ↗

ShiftSummary\_Desk: Muons ↗

**System Affected:** MDT, RPC, TGC, CSC ↗

**Subject:** Shift Summary for Muons desk

**Message text:**

Insert ↗

Each *Message Type* has different options associated to it

Select the appropriate *Message Type*

- Usually *Default Message Type*
- Shift Summary* for end of shift report
- Do not select *Online*

Used by the IGUI for start/stop of run messages

Pay attention to *System Affected*

- A good choice will make searches more effective

Insert a meaningful message subject if a predefined one is not proposed

Attach any needed files

# A Good Log Entry... (i)

- ... is never generic...
  - “*something does not work*” does not help people understanding the problems
- ... but gives a detailed description of the problem
  - Report the name of the running partition
  - Describe the status of the system before the problem
  - Describe how the problem appeared
    - Report error messages
  - Describe the status of the system after the problem
  - Report any helpful and meaningful information
    - Application name, host name, time
- Do not wait for the end of the shift to report any issue
  - Anyway collect all of them for the shift summary log entry

# A Good Log Entry... (ii)

## Giovanna Lehmann Miotto: Shift Summary for Run Control desk

Giovanna Lehmann Shift Summary for Run  
Miotto

Very quiet shift. Here is the summary, with a few things to be looked at: 8:55 stop of run

2009-07-05 14:44

Very quiet shift.

Here is the summary, with a few things to be looked at:

8:55 stop of run 122096

going down the FSM is a pain mostly because of RPC Gnames.

9:01 LAr, Til, Pixel out

Trigger Keys: 483, 732, 567

9:10 At BOOT discovered that some PT processes were left over. A second shutdown cures the problem.

9:11 BOOT

9:11 INITIALIZE

9:11 CONFIG

error from TRT:

09:12:17 ERROR TRTBarrelA\_B-02 TRT::ROD05Module ROD 311a00: Rocketio sync: Lock status = b , buffer status = f

9:15 START

TRT errors:

09:15:35 ERROR TRTBarrelA\_B-02 TRT::ChannelDelayModule TTC 350211: ROD: 0x311a00: RocketIOs optical link lost. lock status: 0xb buffer status: 0xf - performed 10 resyncs. This ROD may have shifted straw data or go BUSY.

09:15:32 ERROR TRTBarrelA\_B-02 TRT::ChannelDelayModule TTC 350211: ROD: 0x311a00: RocketIOs optical link lost. lock status: 0xb buffer status: 0xf - performed 10 resyncs and still not locked!

BCM: BCID mismatches

EF:

EF often indicates that a PT is not working correctly (212 times in this run PT did not finish processing within 1 minute!)-> PT restarted by run control

RPC:

still truncated events (ROS-RPC-BA/BC-00/01 report errors at 0.06 % level)

It would be nice if the ROS and rpcgnam could issue specific error types instead of the generic ROS::InterruptSchedulerException and rpcgnam::AnyError

10:45 STOP

10:50 clean shutdown

11:00 START of run 122129 (LAr and Tile in again)

During run rate variations as RPC is performing a HV scan.



Same warnings/errors as previous run +

MDT:

11:28:10 WARNING MDT-BA3-RCD ROS::CoreException The size of the ROD fragment does not match the information in the ROD trailer: L1ID = 520093811, received size = 23900, expected size = 3221225608

11:33:20 WARNING MDT-BA3-RCD MDT-message MROD-BA3-09-T05 Input 2 BIR2A11: 1 CSM Link errors (Parity/LDOWN)

11:33:18 WARNING ROS-MDT-BA-00 ROS::CoreException Timeout: in request for fragment with L1 ID 1543504258

IDG monitoring PTs dying regularly.

For several TRT ROS:

11:30:39 WARNING ROS-TRT-ECA-04 ROS::ModulesException Error in the status word in the ROB header: RobinDataChannel: Lost fragment detected. The L1ID is 0x3600012f. The ROB Source ID is 0x331502

14:42 Leaving run to next shifter.

# Shift Summary Recommendations

- Example of a good summary outline
  - Goal of the shift
  - List of detectors and/or systems participating to the runs
  - Chronological summary
  - Possibly links to other entries for details
- Hint
  - Give a look at the *Kwrite* item in the *General* menu
    - You can use the editor to take notes for the end-of-shift summary
  - Use ELisA Edit entry functionality: insert Shift Summary entry at the beginning of your shift and update this entry each time there is anything to mention (time will be added automatically for each update).

# Checklist

- Web based solution, replacement of the RunCom tool
- Access it from CRD General Menu

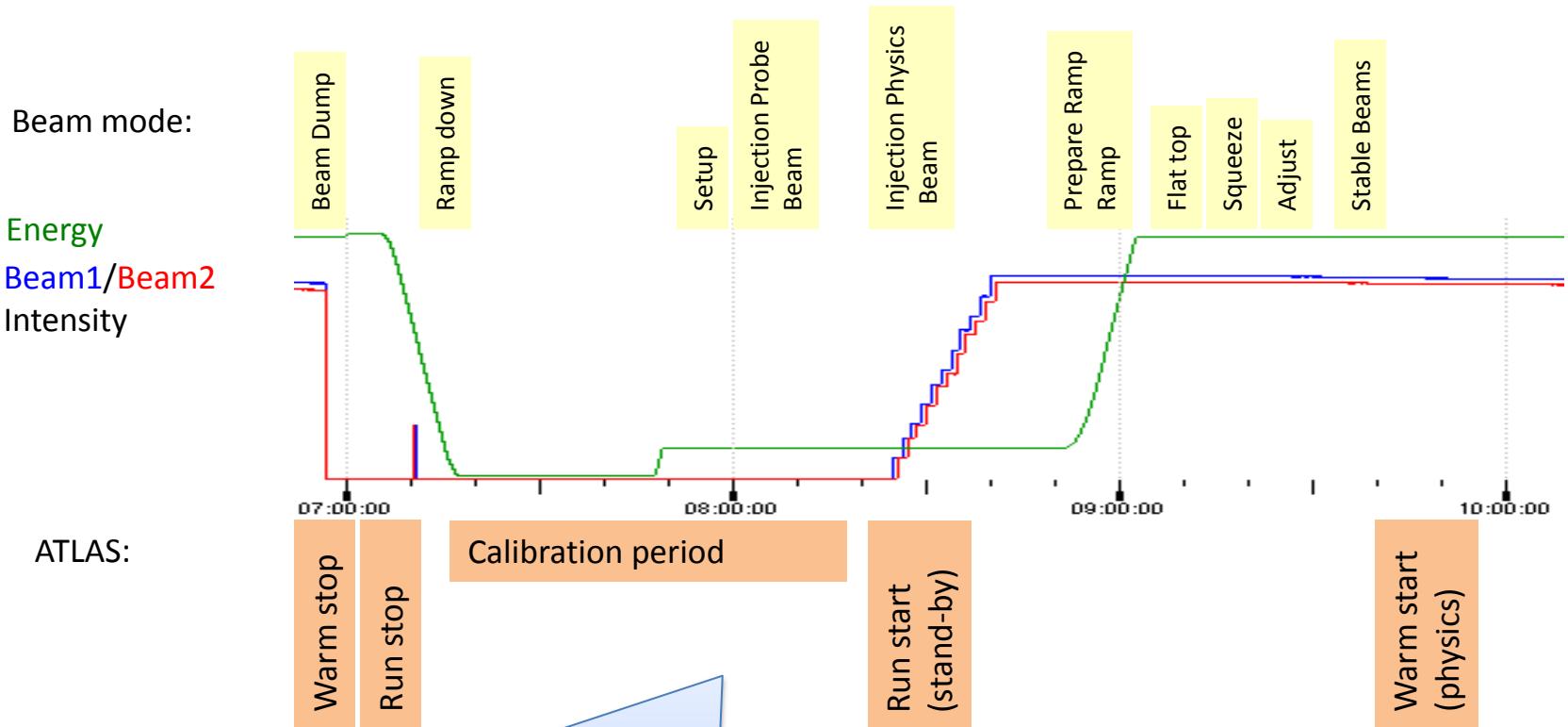
The screenshot shows a Mozilla Firefox browser window with the title "Mozilla Firefox". The address bar displays the URL "http://pc-atlas-w...&desk=RunControl". The main content area is a web-based checklist interface.

| Instruction  | Status  | Comments   |
|--|---|--|
| If ATLAS is not running now it's about time to start a run! Check with the shift leader.<br><a href="#">Help</a>   | <input checked="" type="radio"/> Not Done<br><input type="radio"/> Worked<br><input type="radio"/> Failed | The Injection handshake is ongoing.<br><br><input type="button" value="Browse..."/> No files selected. |
| Systems Affected:<br><input type="checkbox"/> ALFA (RPO) <input type="checkbox"/> BCM <input type="checkbox"/> Beam Conditions <input type="checkbox"/> CSC <input type="checkbox"/> Counting Room <input type="checkbox"/> Cryo <input type="checkbox"/> DAQ <input type="checkbox"/> DCS <input type="checkbox"/> DSS <input type="checkbox"/> DataQuality <input type="checkbox"/> Event Displays <input type="checkbox"/> GAS <input type="checkbox"/> HLT <input type="checkbox"/> ID Gen. (IC) <input type="checkbox"/> LArg <input type="checkbox"/> LVL1 <input type="checkbox"/> Lucid <input type="checkbox"/> MDT <input type="checkbox"/> Magnets <input type="checkbox"/> Monitoring <input type="checkbox"/> Network <input type="checkbox"/> OnlineDB <input type="checkbox"/> Other <input type="checkbox"/> Pixel <input type="checkbox"/> RPC <input type="checkbox"/> Radioprotection <input type="checkbox"/> RunCoord Info <input type="checkbox"/> SCT <input type="checkbox"/> Safety <input type="checkbox"/> SysAdmins <input type="checkbox"/> TGC <input type="checkbox"/> TRT <input type="checkbox"/> Tech. Infra <input type="checkbox"/> Tier0 <input type="checkbox"/> Tile <input type="checkbox"/> ZDC |   |  |

Username:  Password:

# ATLAS and LHC

# LHC cycle and ATLAS Run

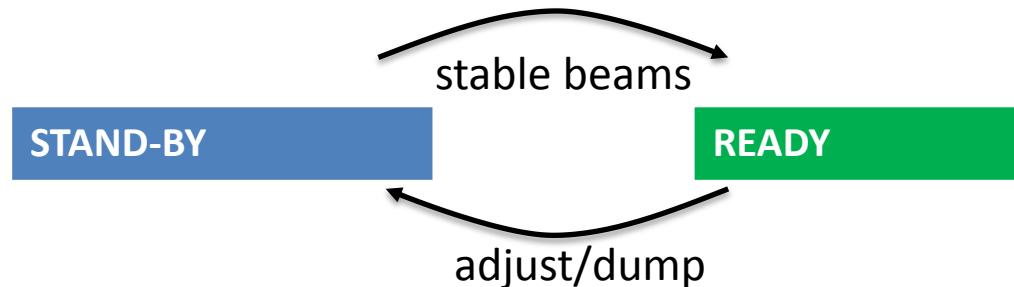


Please note that although we are in preparation and have no beam, we will test and try all of these procedures few times during M8 and beyond

## Typical 2011-2012 time estimates

|                      |              |
|----------------------|--------------|
| Injection            | >20 minutes  |
| Ramp                 | ~20 minutes  |
| Squeeze              | >10 minutes  |
| Adjust               | >7 minutes   |
| Pre-cycle            | ~45 minutes  |
| Dump to stable beams | >127 minutes |

# Warm Start, Warm Stop



|                            |  |                             |
|----------------------------|--|-----------------------------|
| Pixel/IBL                  | No HV, pre-amps off to reduce occupancy                  | HV on, pre-amps on          |
| SCT                        | lowered HV (50V instead of 150V), larger noise occupancy | physics HV                  |
| Muons (RPC, TGC, MDT, CSC) | lower HV, lower efficiency                               | physics HV                  |
| Trigger                    | standby menu   | physics menu, new lumiblock |

- On reaching stable beams, check PIX HV ramps and PIX pre-amps get on (both is normally automatic).  
**PIX READY in DCS → Automatic warm-start done by DAQ. Check it happens !!**
- After warm start check muons and SCT get to READY as well (do not wait for them !)

# Beam Interlock System (BIS)

- For safe detector operation a handshake protocol (with hardware and software signals is defined **between ATLAS and LHC**)
- Detectors participating to BIS:
  - Inner Detector
    - IBL/PIX, SCT, BCM
  - Muons
    - TGC, MDT, CSC
  - Beam Loss Monitors
  - Roman Pots
- Detector desks** have to make sure their detectors are in safe state to allow LHC injection/beam adjust
- The Shift Leader supervises the overall handshake process between LHC and ATLAS

**LHC - ATLAS HANDSHAKE**

The screenshot displays the BIS interface with several key sections:

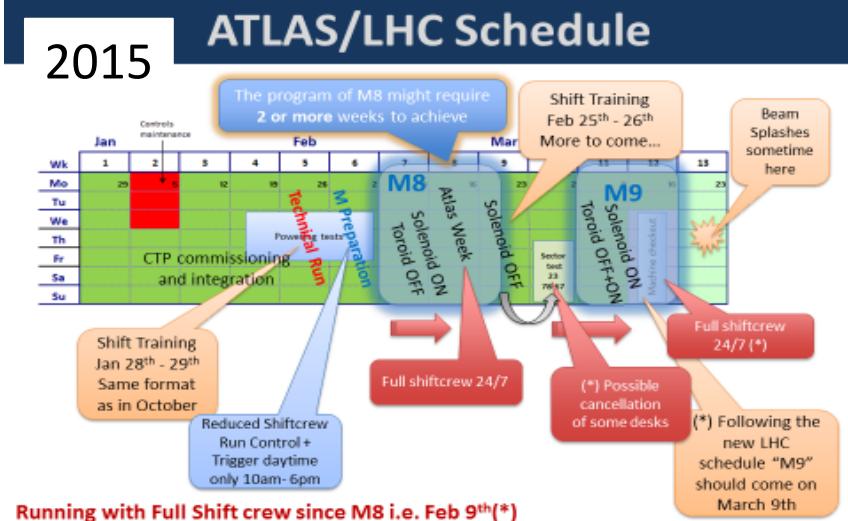
- LHC Messages:** Three tabs for LHC INJECTION, LHC ADJUST, and LHC BEAMDUMP, all showing the status as STANDBY. The timestamp for all messages is 30-10-2014 14:52:06.
- Handshake Log:** A detailed log of interactions between LHC and ATLAS. It lists HSK Type (INJECTION, ADJUST, DUMP), Source (LHC or ATLAS), Message (e.g., STANDBY, VETO), Timestamp, and Reason of ATLAS message (Reply on STANDBY). The log shows multiple exchanges between LHC and ATLAS.
- ATLAS Messages:** Three tabs for ATLAS INJECTION, ATLAS ADJUST, and ATLAS BEAMDUMP, all showing the status as VETO. Publish Message buttons are shown for each tab.
- ATLAS Injection Permit = NO** and **ATLAS Safe for Beam = NO**
- PERMIT from BIS HARDWARE:** A legend defines symbols: teal square = INJECTION PERMIT, red square = NO PERMIT, ACTION REQUIRED, grey square = MASKED, and light grey square = NO PERMIT, OK. Below it, a row of squares corresponds to detector components: BCM, BLM, Pixel, SCT, Muons, RP1, RP2, Box BCM, Inj.Key, and Global Permit.
- SAFE FOR BEAM from DCS:** A legend defines symbols: teal square = SAFE FOR BEAM, red square = NOT SAFE, ACTION REQUIRED, orange square = UNKNOWN, and light grey square = NOT SAFE, OK. Below it, a row of squares corresponds to detector components: PIX, SCT, BCM, MDT, TGC, CSC, and RPO.
- Permit without masking:** A table showing the status of various detectors for both BIS and DCS. The columns are grouped by detector type: BIS (BCM, BLM, Pixel, SCT, Muons, RP1, RP2, Box BCM), DCS (Inj.Key, Global Permit), and DCS FSM Consistency (PIX, SCT, MDT, TGC, CSC).
- DCS FSM Consistency:** A legend defining symbols: teal square = STANDBY, blue square = ACTIVE, and orange square = FAULT.

# Final Remarks

# What we expect being on Shift

- ATLAS is coming out of a Long Shutdown LS-1
- New detectors (IBL ...), several upgrades and refurbishments (all detectors, etc.)
- Totally new TDAQ scheme:
  - 2 trigger level (L1 + HLT)
  - new ROS, new HLT farm organization, new network
  - New CTP (+L1topo)
- LHC is starting up, but most of the operations among ATLAS and LHC are still detached (LHC clock, injection inhibit, stable beams handshake)
- We had 7 milestone weeks in 2014 with more and more detectors being integrated.
- In 2015 several new systems joining the first time (New CTP, L1topo, Run-2 Trigger menu)
- M9 is needed to validate ATLAS as a whole experiment, take cosmic calibration data and prepare for Run-2
- Many things still to be tested... documentation unfortunately always comes last (if ever)

|        | M1 ✓           | M2 ✓           | M3 ✓           | M4 ✓                            | M5 ✓           | M6 ✓           | M7 - Cosmic Run Nov 24 <sup>th</sup> - Dec 8 <sup>th</sup>   |
|--------|----------------|----------------|----------------|---------------------------------|----------------|----------------|--|
|        | Feb 17- Feb 23 | Mar 31- Apr 4  | May 19- May 23 | Jul 7- Jul 11                   | Sep 8- Sep 12  | Oct 13- Oct 17 | Full Shiftcrew; all detectors included; B field ON from Dec 1st.   |
| PIX    |                |                |                | X <sup>1</sup> , X <sup>2</sup> | X <sup>2</sup> |                | <sup>1</sup> TDAQ integration, using events simulated at ROD   |
| IBL    |                |                |                | X <sup>1</sup>                  | X <sup>2</sup> |                | <sup>2</sup> test with frontend, ID endplate in, detector cold nominal   |
| SCT    |                |                |                | X                               | X <sup>2</sup> |                | As above, all staves in M6   |
| TRT    | X              |                |                |                                 |                |                | As above, Barrel + Endcap in M6  |
| LAR    |                |                |                | X                               |                |                | All information in P1 Twiki:<br><a href="https://atlasop.cern.ch/twiki/bin/view/Main/Run2Preparation">https://atlasop.cern.ch/twiki/bin/view/Main/Run2Preparation</a>  |
| TIL    |                |                |                | X                               |                |                | M5: TDAQ update, DB upgrade, all of ID joining, etc.   |
| MBTS   |                |                |                | X                               |                |                | Both sides in M5   |
| L1Calo | X <sup>1</sup> |                |                | X <sup>2</sup>                  | X <sup>3</sup> | X <sup>4</sup> | <sup>1</sup> Readout only. <sup>2</sup> Full legacy triggering with TIL + LAR<br><sup>3</sup> CMX triggering both CP/JEP systems, L1Topo Readout Commissioned. <sup>4</sup> L1Topo commissioned fully in trigger system → M7 |
| CSC    | X <sup>1</sup> |                |                |                                 | X <sup>2</sup> | X <sup>2</sup> | <sup>1</sup> Old RODs, side A only <sup>2</sup> New ROD Commissioning  |
| MDT    | X              |                |                |                                 |                |                |  |
| RPC    |                | X <sup>1</sup> | X <sup>1</sup> |                                 |                |                | <sup>1</sup> TDAQ integration. HV for ~ 1 sector   |
| TGC    | X <sup>1</sup> |                |                |                                 |                | X <sup>2</sup> | <sup>1</sup> no HV/gas until Jan 2015, <sup>2</sup> chamber replacements   |
| BCM    | X              |                |                |                                 |                |                |  |
| ALFA   |                |                |                |                                 | X              |                |  |
| LUCID  |                |                |                |                                 |                |                |  |
| Lumi   |                |                |                | X                               | ↑              | ↑              |  |



# About Shift

- **Shifters are expected to communicate.** In particular it's important that the links between the detectors and the shift leader and the other central desks is kept up-to-date for possible problems or to allow following the program of the day.
- When coming on shift check the daily program and get an from your predecessor.
- **Verify your system is in the expected state** (combined running, ready for combined running, calibration, maintenance).
- Constantly monitor the ongoing activities, the Run Control, your detector getting busy, the DCS, DQ.
- During M8 and beyond we might be still far from routine running and there won't be strict time limitations of following the LHC cycle and data taking but **all aspects will need to be tests**.
- In addition M8/M9 will be used to take important data (cosmics), perform several tests for validation, calibration and alignment of the detectors.
- **The use of the logbook by all shifters** will be extremely important to log problems, progress, and the data taken

# Next Week's Program

- Overall system and operation consolidation:
  - Verify TDAQ chain and central services
    - Level 1 trigger, Central Trigger Processor, High Level Trigger, Online and Offline Data Quality, Luminosity, Data Preparation
  - Test system by system:
    - verify high rate performance, stopless removal - recovery
    - TDAQ status, Monitoring, calibration procedures, etc.
    - DCS: FSM state & status, Alarm Screen (alarm help...)
    - beam handshake, injection permit, warm start
    - Automated/manual actions “goto ready” (functionality and speed)
    - Beam Splashes (March 23<sup>rd</sup>)
- Magnets:
  - Solenoid planned to be mostly ON
  - Toroid likely ramping up ~ mid of March
- Data taking:
  - Combined data taking from beginning (in particular overnight), given the statistics needed, priority to ID but not only.
  - Present Special Run requests collected by DP:  
<https://twiki.cern.ch/twiki/bin/viewauth/Atlas/CosmicData2014>
- Validate central and detector shift operation

# Shift Booking and Docs

- **Contacts for shifts (booking and info)**
  - Booking: <http://atlas-otp.cern.ch/>

| OTP id | Shift tasks                      | E-mail contact:  |
|--------|----------------------------------|--|
| 531450 | ATLAS Shift Leader (ACR)         | <a href="mailto:atlas-run-coordinators@cern.ch">atlas-run-coordinators@cern.ch</a>   |
| 10213  | ATLAS Run Control Shifter (ACR)  | <a href="mailto:Andrei.Kazarov@cern.ch">Andrei.Kazarov@cern.ch</a>   |
| 531452 | ATLAS Trigger Shifter (ACR)      | <a href="mailto:alexander.oh@cern.ch">alexander.oh@cern.ch</a> , <a href="mailto:martin.erik.gerd.zur.nedden@cern.ch">martin.erik.gerd.zur.nedden@cern.ch</a>  |
| 531453 | ATLAS Data Quality Shifter (ACR) | <a href="mailto:Elizaveta.Shabalina@cern.ch">Elizaveta.Shabalina@cern.ch</a>   |
| 531454 | ATLAS ID Shifter (ACR)           | <a href="mailto:Kerstin.Lantzsch@cern.ch">Kerstin.Lantzsch@cern.ch</a> , <a href="mailto:Per.Johansson@cern.ch">Per.Johansson@cern.ch</a> , <a href="mailto:Andrey.Loginov@cern.ch">Andrey.Loginov@cern.ch</a> |
| 531455 | ATLAS Calo+Fwd Shifter (ACR)     | Emmanuel Monnier < <a href="mailto:monnier@in2p3.fr">monnier@in2p3.fr</a> >  |
| 531456 | ATLAS Muon Shifter (ACR)         | <a href="mailto:Philipp.Fleischmann@cern.ch">Philipp.Fleischmann@cern.ch</a>   |

- **Documentation and links**

- Run 2 Preparation Page:

<https://atlasop.cern.ch/twiki/bin/view/Main/Run2Preparation>

- Shift Training:

<https://atlasop.cern.ch/twiki/bin/view/Main/M8ShiftTraining>

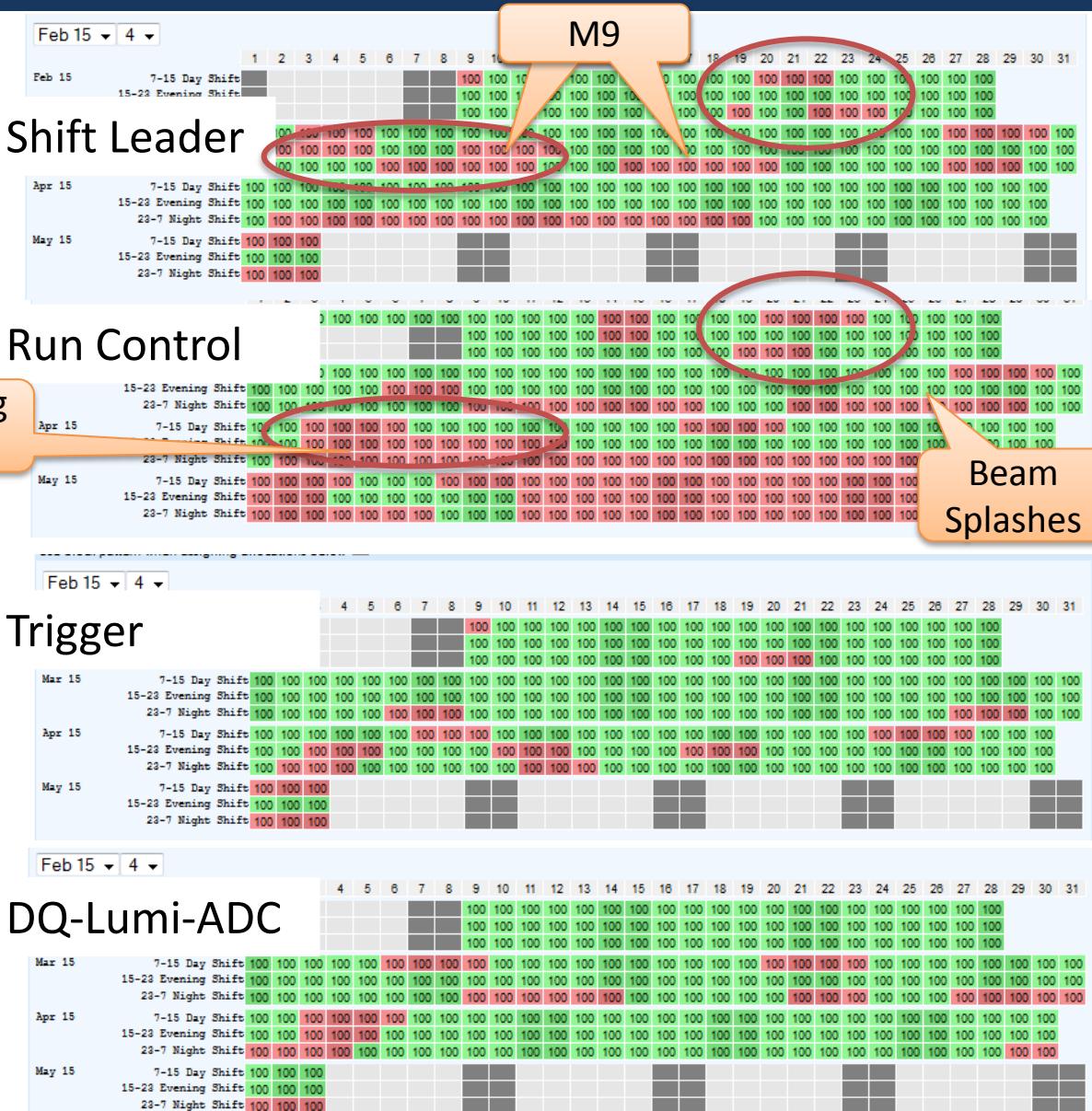
# Shift Booking

We have serious problems already filling central shifts – especially Shift leader and Run Control

Commissioning with Beam

We also have comments that there are “not enough” system shifts in the ACR

**PLEASE encourage your colleagues and yourselves to take central shifts!**



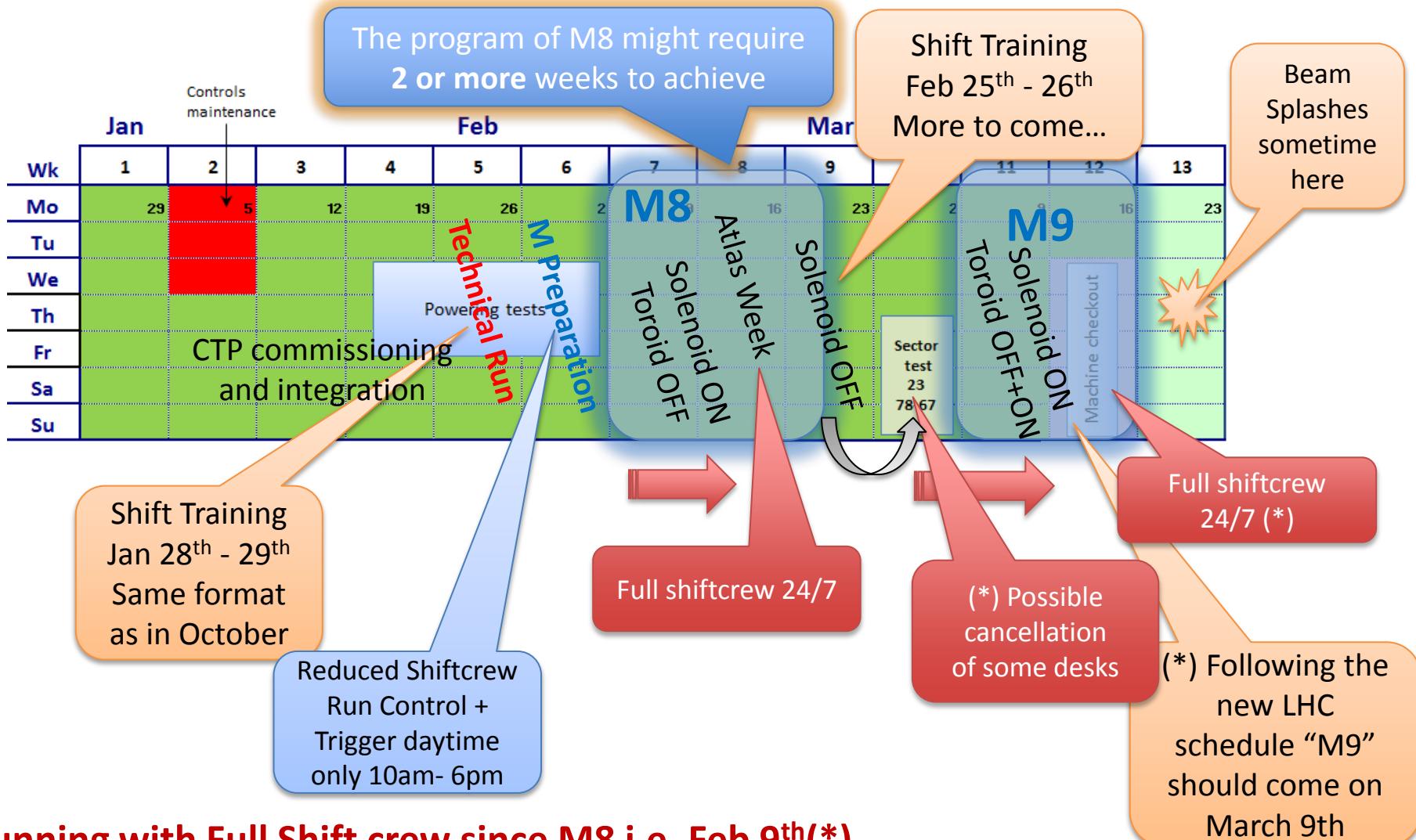
# Thank You!

Reminder:

- please sign the attendance sheet (once per session).
- If you didn't register please add name and E-mail
- For Run Control and Trigger, attendance to both trainings Run Control and Trigger of tomorrow morning are required
- **Next Training Sessions:**
  - Mar 25<sup>th</sup>-26<sup>th</sup>; confirmed
  - **New dates (to be confirmed within this week):**
    - April 29<sup>th</sup> - 30<sup>th</sup>; June 3<sup>rd</sup> - 4<sup>th</sup>; July 8<sup>th</sup> - 9<sup>th</sup>

# Backup

# ATLAS/LHC Schedule



Running with Full Shift crew since M8 i.e. Feb 9<sup>th</sup>(\*)

Toroid On second week of M9

# Afternoon Parallel Session

**Thursday 2pm**

- **Inner Detector:**  
**6-2-004 (Meyrin)**
- **Calo+Fwd:**  
**3162-1-K01 (this room@P1)**
- **Muons:**  
**61-1-009 - Room C (Meyrin)**
- **Data Quality:**  
**222-R-003 (Meyrin)**