

# Preparation of the DCS for the 2016 DVCS Run

COMPASS Technical Board  
March 23, 2016

C. Pires



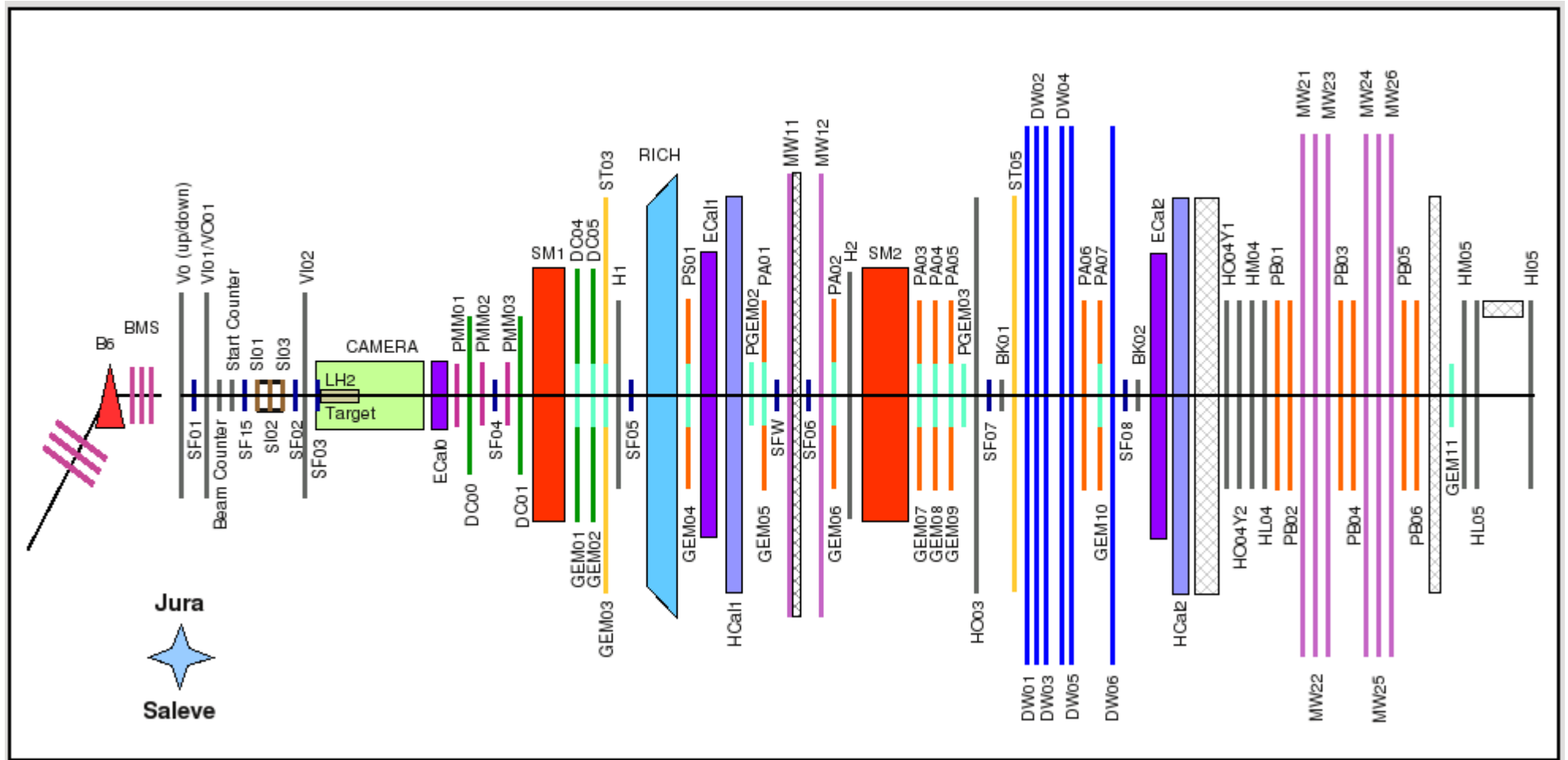
**FCT** Fundação para a Ciência e a Tecnologia  
MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

Ref.: CERN/FIS-NUC/0017/2015



- DCS main distributed project
  - 2 SLC6 / x86\_64 PCs
  - WinCC OA 3.11 SP1
  - JCOP Framework 5.2.1 (core)
  - WinCC OA Oracle DB schema v8.9
- DCS scattered projects
  - 3 Windows 7 64-bit PCs
  - WinCC OA 3.11 SP1
  - OPC servers: CAEN, Iseg, Wiener (Krakow), Schneider, CANOpen
- SLiC servers
  - 4 SLC5 / i386, custom kernel build PCs
  - CAENet driver
  - DIM

\*Updated



## BMS, Scifis and Trigger hodoscopes

- BMS
  - High voltage control and monitoring checked
- Scifis
  - High voltage control and monitoring
    - CAEN HV mainframes SY403 and SY527 (SLiC) checked
    - CAEN HV mainframe SY2527 to be checked once on
  - Low voltage control and monitoring to be checked once on
- Trigger hodoscopes
  - New high voltage system
    - CAEN HV mainframe SY4527 → New
    - CAEN HV A1535 SN boards
    - Other board models to be integrated?
  - High voltage control and monitoring to be checked once on
  - Trigger and Veto rates monitoring moved to DCS Trigger section

## Silicons

- Same setup as in 2012
  - Cryogenics monitoring via Modbus
  - Already connected
- High and low voltage control and monitoring to be checked once on

Silicon HV SYSTEM Beam Stations: Station 1 Station 2 Station 3 Cryogenics

Silicon HV channels:

Group operation:	Channel Name	v0(V)	vMon(V)	Mon(mA)	VMax(V)	I(mA)	IsOn	HwAlarms
On	SL_Hv_01UV	0.100	0.150	0.000	250.000	5.000	FALSE	OK
Off	SL_Hv_01XY	0.100	0.010	0.000	250.000	5.000	FALSE	OK
Settings	SL_Hv_02UV	0.100	0.930	0.000	250.000	5.000	FALSE	OK
Trends	SL_Hv_02XY	0.100	3.230	0.000	250.000	5.000	FALSE	OK
Pop Window	SL_Hv_03UV	0.100	0.000	0.000	250.000	5.000	FALSE	OK
Action	SL_Hv_03XY	0.100	0.360	0.000	250.000	5.000	FALSE	OK
	SL_Hv_04UV	0.000	0.180	0.000	250.000	5.000	FALSE	OK
	SL_Hv_04XY	0.000	0.120	0.000	250.000	5.000	FALSE	OK
	SL_Hv_05UV	0.000	0.220	0.000	250.000	5.000	FALSE	OK
	SL_Hv_05XY	0.000	0.020	0.000	250.000	5.000	FALSE	OK
	SL_Hv_ColdboxUV	0.000	0.250	0.000	250.000	5.000	FALSE	OK
	SL_Hv_ColdboxXY	0.000	0.060	0.000	250.000	5.000	FALSE	OK
	SL_Hv_05Spare03	0.000	0.080	0.000	250.000	5.000	FALSE	OK
	SL_Hv_05Spare04	0.000	0.010	0.000	250.000	5.000	FALSE	OK
	SL_Hv_05Spare05	0.000	0.280	0.000	250.000	5.000	FALSE	OK
	SL_Hv_05Spare06	0.000	0.100	0.000	250.000	5.000	FALSE	OK

Silicon HV SYSTEM Beam Stations: Station 1 Station 2 Station 3 Cryogenics

Silicon Station 1 channels:

Group operation:	Channel Name	v0 (V)	vMon (V)	Mon (A)	IsOn	HwAlarms
On	SL_Lv_01Un	3.40	0.00	0.00	FALSE	OK
Off	SL_Lv_01Up	3.45	0.00	0.00	FALSE	OK
Settings	SL_Lv_01Vn	3.45	0.00	0.00	FALSE	OK
Trends	SL_Lv_01Vp	3.40	0.00	0.00	FALSE	OK
Pop Window	SL_Lv_01Xn	3.50	0.00	0.00	FALSE	OK
Action	SL_Lv_01Xp	3.40	0.00	0.00	FALSE	OK
	SL_Lv_01Yn	3.50	0.00	0.00	FALSE	OK
	SL_Lv_01Yp	3.40	0.00	0.00	FALSE	OK

Silicon HV SYSTEM Beam Stations: Station 1 Station 2 Station 3 Cryogenics

Beam Stations

Valve Box Alarms

Dewar\_Liquid\_Level

0.30 % A

Valve\_Box\_Vacuum

4.327e+01 mbar A

Valve\_Box\_Vessel\_Pressure

960.10 mbar A

Valve\_Box\_LN2\_Temperature

292.10 K A

Valve\_Box\_Vacuum\_Pump\_Temperature

273.10 K A

Safety\_Valve\_Temperature

0.00 °C A

Valve\_Box\_Inlet\_Pressure

953.70 mbar A

Target\_Coldbox\_Nitrogen\_Supply\_Valve

0.00 % A

Big\_Dewar\_LN2\_Liquid\_Level

16792.00 L A

Big\_Dewar\_LN2\_Pressure

3.07 bar A

Valve Box

List All Silicon Cryogenics Info

SI01 Alarms

SI01\_Module1\_Temperature

296.90 K A

SI01\_Module2\_Temperature

294.40 K A

SI01\_PhaseSep\_Temperature

295.00 K A

SI01\_Vacuum\_Pump\_Temperature

273.10 K A

SI02 Alarms

SI02\_Module1\_Temperature

299.40 K A

SI02\_Module2\_Temperature

296.45 K A

SI02\_PhaseSep\_Temperature

292.40 K A

SI02\_Vacuum\_Pump\_Temperature

273.10 K A

SI03 Alarms

SI03\_Module1\_Temperature

299.40 K A

SI03\_Module2\_Temperature

294.40 K A

SI03\_PhaseSep\_Temperature

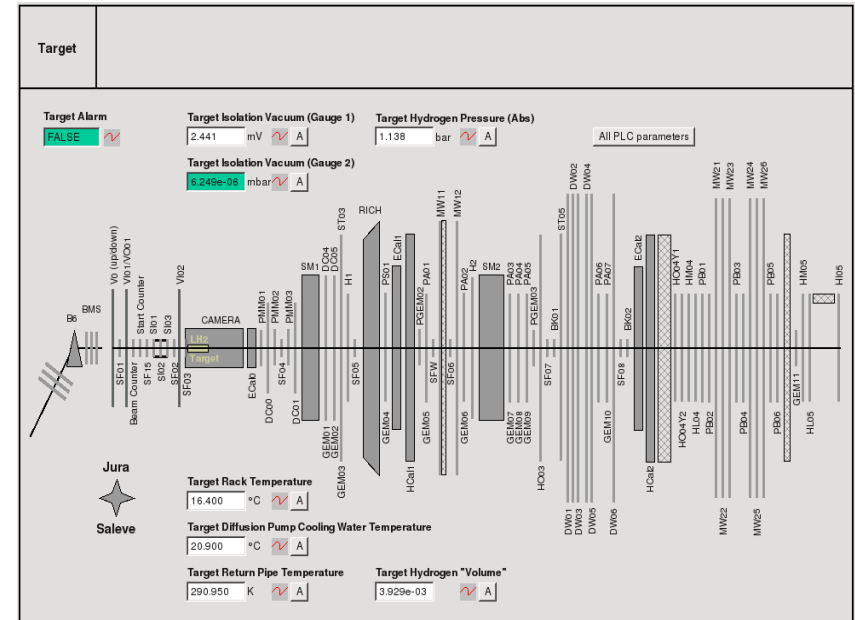
295.90 K A

SI03\_Vacuum\_Pump\_Temperature

273.10 K A

# LH<sub>2</sub> Target

- Same setup as in 2012
  - Siemens S7-1200 PLC monitoring performed via WinCC OA S7 driver
    - Issues to connect to the PLC - ticket [ENS-16250](#) → Solved
- Additional temperature probe → New
- Renaming of parameters for clarity
- Alert handling and sms notifications implemented
- Tests ongoing



# Camera

- Same setup as in 2012
  - High voltage system
    - CAEN HV SY1527 mainframe
    - CAEN HV boards A1733N
    - CAEN HV boards A1833N
    - Few channels to be moved from SY527 to SY1527
- High voltage monitoring checked
- High voltage control to be checked once switched back on

Camera

HV System

Camera HV System channels: A

Group operation:

On

Off

Settings

Trends

Pop Window

Action

Channel Name	v0 (V)	vMon (V)	IMon (μA)	IsOn	HwAlarms
Camera_Hv_A_Ch000_Down	1663.00	0.00	0.00	FALSE	OK
Camera_Hv_A_Ch000_Up	1530.00	3.40	1.00	FALSE	OK
Camera_Hv_A_Ch001_Down	1750.00	0.00	0.00	FALSE	OK
Camera_Hv_A_Ch001_Up	1739.00	0.00	0.00	FALSE	OK
Camera_Hv_A_Ch002_Down	1644.00	0.00	0.00	FALSE	OK
Camera_Hv_A_Ch002_Up	1525.00	0.00	0.00	FALSE	OK
Camera_Hv_A_Ch003_Down	1708.00	0.00	0.00	FALSE	OK
Camera_Hv_A_Ch003_Up	1774.00	0.00	0.00	FALSE	OK
Camera_Hv_A_Ch004_Down	1650.00	0.00	0.00	FALSE	OK
Camera_Hv_A_Ch004_Up	1654.00	3.00	1.00	FALSE	OK
Camera_Hv_A_Ch005_Down	1582.00	0.00	0.00	FALSE	OK

Camera HV System channels: B

Group operation:

On

Off

Settings

Trends

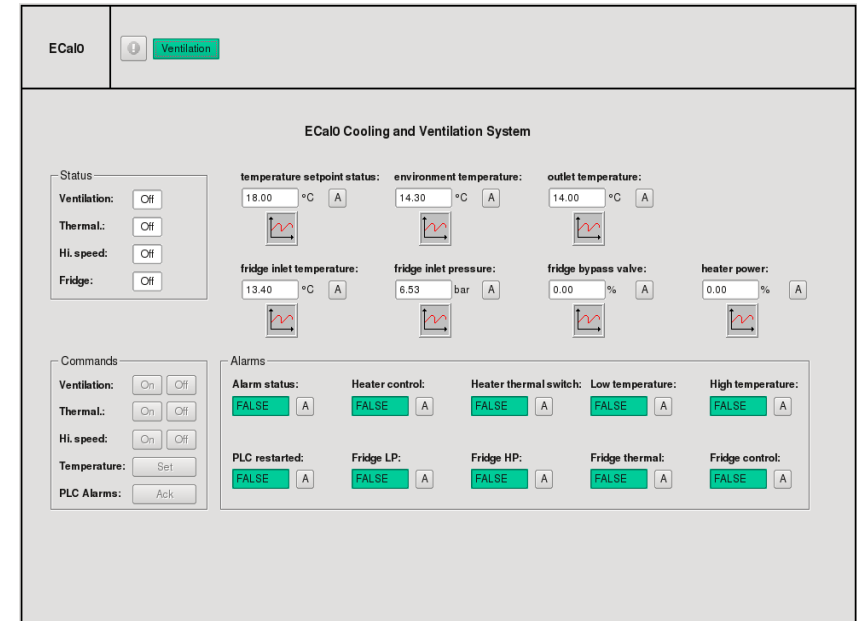
Pop Window

Action

Channel Name	v0 (V)	vMon (V)	IMon (μA)	IsOn	HwAlarms
Camera_Hv_B_Ch000_Down	1834.00	0.00	0.00	FALSE	OK
Camera_Hv_B_Ch000_Up	1774.00	0.00	0.00	FALSE	OK
Camera_Hv_B_Ch001_Down	1787.00	0.00	0.00	FALSE	OK
Camera_Hv_B_Ch001_Up	1777.00	0.00	0.00	FALSE	OK
Camera_Hv_B_Ch002_Down	1711.00	0.00	0.00	FALSE	OK
Camera_Hv_B_Ch002_Up	1767.00	0.00	0.00	FALSE	OK
Camera_Hv_B_Ch003_Down	1697.00	0.25	0.00	FALSE	OK
Camera_Hv_B_Ch003_Up	1877.00	0.00	0.00	FALSE	OK
Camera_Hv_B_Ch004_Down	1794.00	0.00	0.00	FALSE	OK
Camera_Hv_B_Ch004_Up	1743.00	0.00	0.00	FALSE	OK
Camera_Hv_B_Ch005_Down	1758.00	0.00	0.00	FALSE	OK

## ECal0

- Cooling and ventilation system → New
  - Schneider PLC TSX Premium
    - Ethernet connection
      - Exposed to TN for EN/CV supervision
  - Control and monitoring performed via Schneider OFS OPC server
- Delta Electronics low voltage → New
  - To be checked if and how it can be integrated
- DCS LED monitoring integration?
  - Non-DCS standalone solution adopted by ECal0 group



## Drift Chambers and MicroMegs

- Drift Chambers
  - Control of DC05X will be activated
  - High voltage control and monitoring to be checked once on
- MicroMegs
  - Low voltage remote control → Updated
    - DIM Server connects directly to the Ethernet to Digital IO Relay
      - No intermediate script used anymore
  - High voltage control and monitoring to be checked once on



## RICH

- Gas system monitoring → Updated
  - CsI MWPC and CsI THGEM → New
    - Panels layout might change
    - Alert handling not defined
- New high voltage system
  - CAEN HV mainframes SY4527 → New
  - CAEN HV boards A1561 HDN → New
  - CAEN HV boards A7030 DP → New
- CAEN board models not supported by current CAEN JCOP component - ticket [ENS-16519](#)
  - An update will be provided as soon as the boards can be tested

RICH	HV SYSTEM	MAPMTs	LV System	Temperatures	GAS SYSTEM
		S Top S Bottom J Top J Bottom			Vessel CsI MWPC CsI THGEM

**CsI MWPC**

Gas

Mixt setpoint value: 51.50 %

CH4 flow value: 0.00 l/h

Argon flow value: 0.00 l/h

CH4 Alarm: FALSE

CH4 Fault: FALSE

Mixt Option Mode: FALSE

CH4 Option Mode: FALSE

Argon Alarm: FALSE

Argon Fault: FALSE

Argon Option Mode: TRUE

Pressure

Injection pressure: 520.00 mbar

Return pressure: 1.80 mbar

Hp Injection Fault: FALSE

Lp Injection Fault: FALSE

Hp Return Fault: FALSE

Lp Return Fault: FALSE

General

Alarm: FALSE

Fault: FALSE

ON: FALSE

Purge: TRUE

RICH	HV SYSTEM	MAPMTs	LV System	Temperatures	GAS SYSTEM
		S Top S Bottom J Top J Bottom			Vessel CsI MWPC CsI THGEM

**CsI THGEM**

Gas

Mixt setpoint value: 50.00 %

CH4 flow value: 0.00 l/h

Argon flow value: 0.00 l/h

CH4 Alarm: FALSE

CH4 Fault: FALSE

Mixt Option Mode: FALSE

CH4 Option Mode: FALSE

Argon Alarm: FALSE

Argon Fault: FALSE

Argon Option Mode: TRUE

Pressure

Injection pressure: 150.80 mbar

Return pressure: 1.50 mbar

Hp Injection Fault: FALSE

Lp Injection Fault: TRUE

Hp Return Fault: FALSE

Lp Return Fault: FALSE

General

Alarm: FALSE

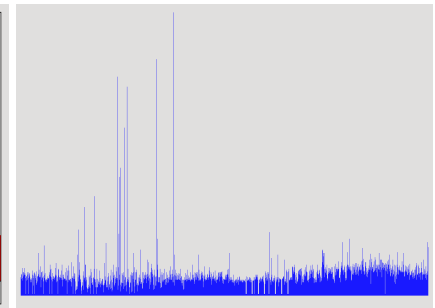
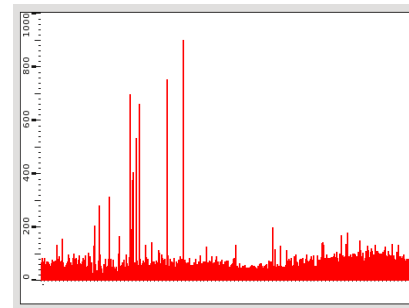
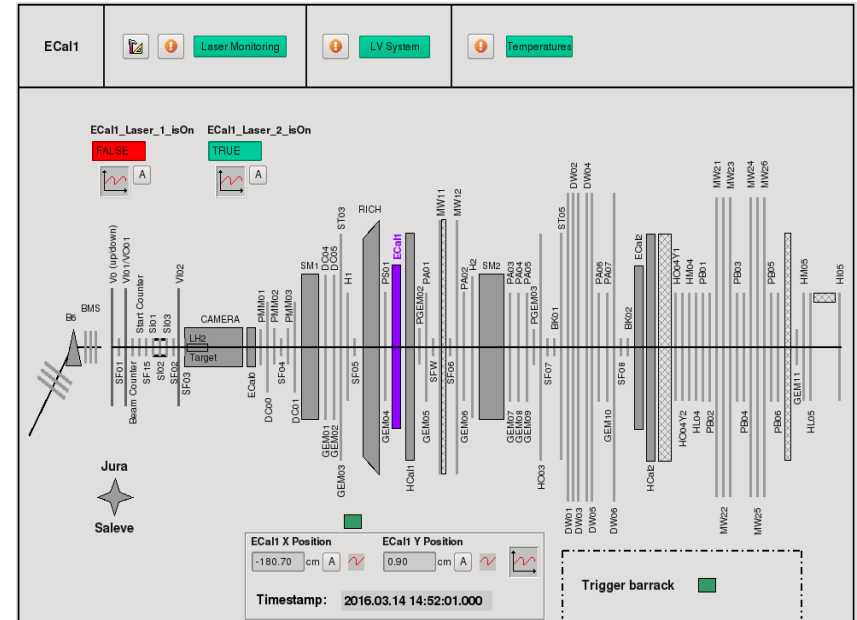
Fault: TRUE

ON: FALSE

Purge: FALSE

## ECal1

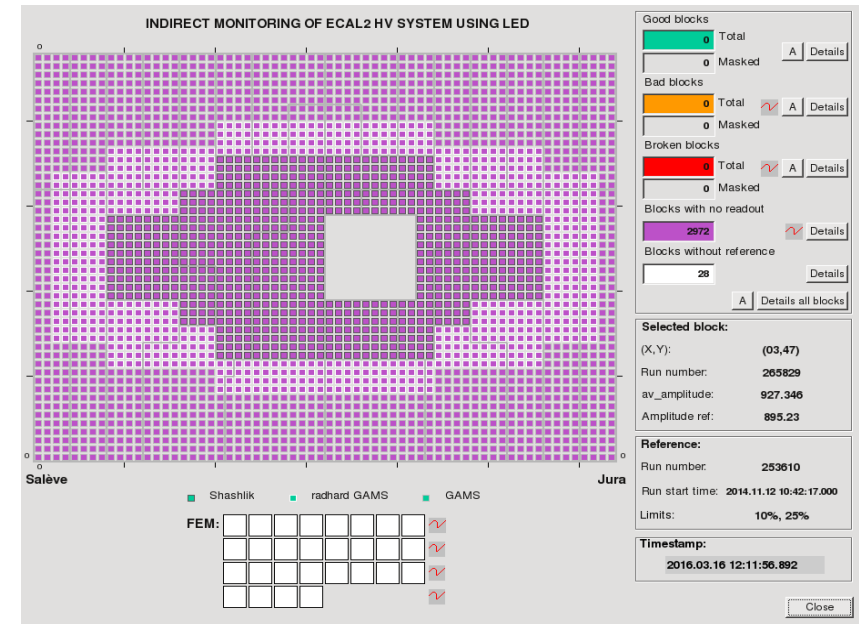
- Independent monitoring of ECal1 lasers ON/OFF status → New
- Request to get the pedestals data
  - Pedestals aren't stored in the MySQL database...
- Request to provide an histogram with the amplitudes of all blocks
  - JCOP Framework Bar Graph
    - Slow/Unresponsive
      - 1730 bars to update on a Trend like shape!
  - Drawing channels as vertical lines in a panel → too wide
  - Unable to easily plot a reference curve in both cases
  - COOOL plots might be a better option



X → channel/block #  
Y → Amplitude

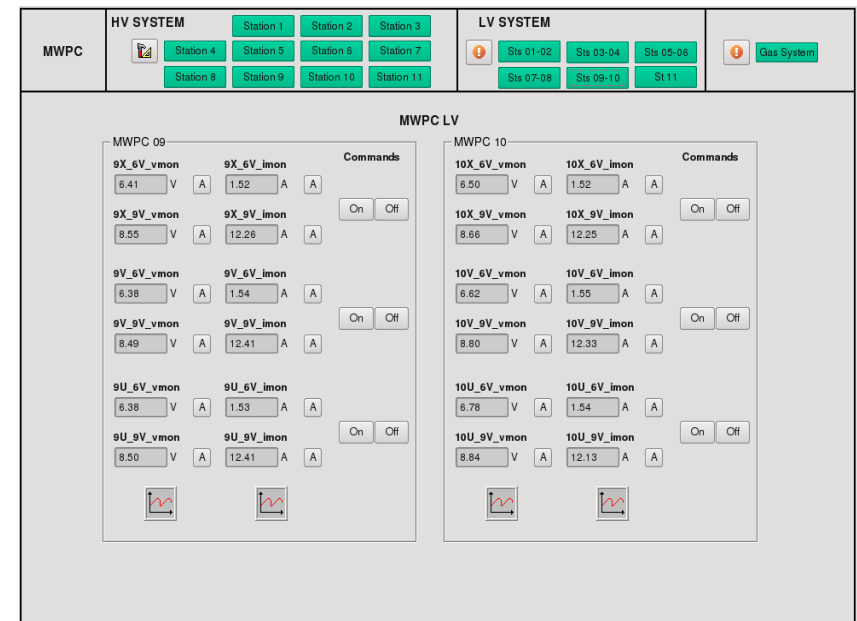
## ECal2, HCal1 and HCal2

- ECal2
  - FEMs added to LED monitoring → New
- HCal1
  - No changes
- HCal2
  - No changes



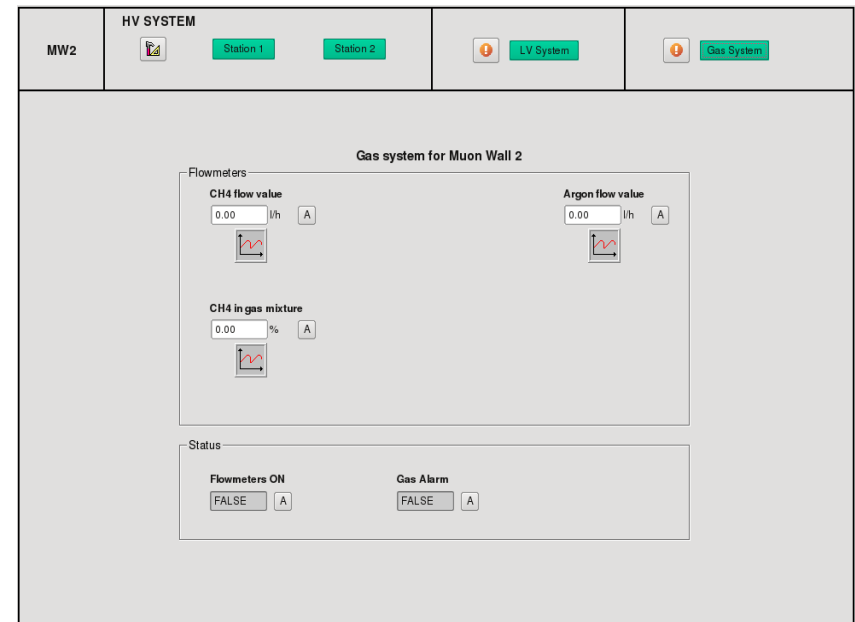
## GEMs and MWPCs

- GEMs
  - Station 11 put back in the DCS
  - High and low voltage control and monitoring to be checked once on
- MWPCs
  - Low voltage remote control → New
    - Performed via ELMB/CANOpen
  - Stations 7 and 11 low voltage → New
  - High voltage control and monitoring to be checked once on



## MW1, MW2 and Straws

- MW1
  - High and low voltage control and monitoring to be checked once on
- MW2
  - Gas system connected to PLC3
    - DCS monitoring updated → New
      - OFS Schneider OPC Server
      - To be checked once gas on
  - High and low voltage control and monitoring to be checked once on
- Straws
  - High and low voltage control and monitoring to be checked once on



## DAQ, Gandalf and M2 Beamline

- DAQ
  - VME crates
    - VME crates to be added → New
      - Ex: ECal0, Camera, TCS controller, etc.
- Gandalf
  - Improvement of monitoring?
    - ADC monitoring wasn't working in 2015
- M2 Beamline
  - Request to get more information - ticket [CMW-1907](#)
    - Supercycle length - denied
      - Can be extracted from CALS Data Extraction API or Timber (for offline/statistics)
  - Calibration factors of scalers - denied
    - History of changes added to CESAR GUI
    - Calibrated counts to be provided via DIP and CALS - ticket [CSR-1501](#)
  - Obstacle positions – accepted and published → New
    - Electron target and absorbers positions - ticket [CSR-1500](#)
  - Timing events - pending

Any other requests for the DCS?  
If any, please give them ASAP.

Spares

# IV JCOP Workshop 2015

## IV JCOP Workshop 2015

4-5 November 2015

Château de Bossey (Switzerland, 20 km from CERN)

Europe/Zurich timezone

### Overview

[Timetable](#)

[Registration](#)

[How to get to the  
Château - Transport](#)

[Participant List](#)

[Accommodation](#)

[Practical Information](#)

### Support

[en-dep.workshops@cer...](mailto:en-dep.workshops@cern.ch)

The aim of this workshop is define the mid and long term plans for *The Joint Controls Project (JCOP)* in view of the LS2 and LS3 upgrades.

Topics that will be covered include:

- Operational experience
- Upgrade plans
- Front-end and middleware solutions
- Supervision
- Data-driven configuration
- Data-analytics

Organising Committee:

- Andre Augustinus (ALICE)
- Clara Gaspar (LHCb)
- Philippe Gayet (EN-ICE)
- Frank Glege (CMS)
- Manuel Gonzalez Berges (EN-ICE)
- Stefan Schlenker (ATLAS)
- Fernando Varela (EN-ICE), Chairman



[Château de Bossey \(maps and directions\)](#)



**Starts** 4 Nov 2015 09:00

**Ends** 5 Nov 2015 17:30

Europe/Zurich



Varela Rodriguez, Fernando



Château de Bossey (Switzerland, 20 km  
from CERN)

Room "Genève-Lausanne"

## [WinCC Open Architecture V3.14](#)

Dear All,

ETM will be presenting their latest version of WinCC OA (3.14) in a seminar/course on the 7<sup>th</sup> of April. We are in the process of planning the possible deployment of this version for the EYETS next year. The seminar is mainly intended for people developing regularly with WinCC OA. Please forward it to the relevant people. You can register here:


<https://indico.cern.ch/event/509401/>


If you are not interested in the whole seminar but still have some specific topics that you would like to discuss with ETM, please let me know in advance.

Regards,  
Manuel

### WinCC Open Architecture V3.14

chaired by Manuel Gonzalez Berges (CERN)

 Thursday, 7 April 2016 from 09:00 to 17:30 (Europe/Zurich)

 CERN ( 40-2-A01 )

**Description** In view of the possible update to 3.14 during the next EYETS, ETM engineers will come to CERN to show us the improvements and new features of the version.

The agenda is only a guideline of the times and topics to be followed. The seminar will be mostly interactive.

**Registration**



*This event is open to new participants.*



Register

[COMPASS](#)

[COMPASS DCS](#)

[WinCC OA](#)

[JCOP Framework](#)

[DIM](#)

[DIP](#)

[ELMB](#)

[OPC](#)

[SLiC](#)

[CAEN](#)

[ISEG](#)

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