DCS SW status and plans

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On behalf of the DCS team

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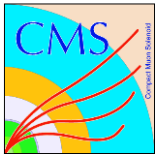


Outline

- DCS Readiness
  - Ready
  - Deployed in central DCS
  - Under finalization
  - Not ready
- DCS Timeline
- Possible issues/support needed from the GEM

DCS Readiness

READY

- DCS panels
  - Main DCS panel
  - Chamber status monitoring and controlling panels
  - Power supply status monitoring and controlling panels
  - LV, HV scan panels
  - LV power cycle panel
  - Trending plots
- GAS system DCS panels
  - Main Gas DCS panel
  - Gas mixer status monitoring panels
  - Rack and flow cell status monitoring panels
- Alarms and Archiving
- Database connections

DCS Readiness

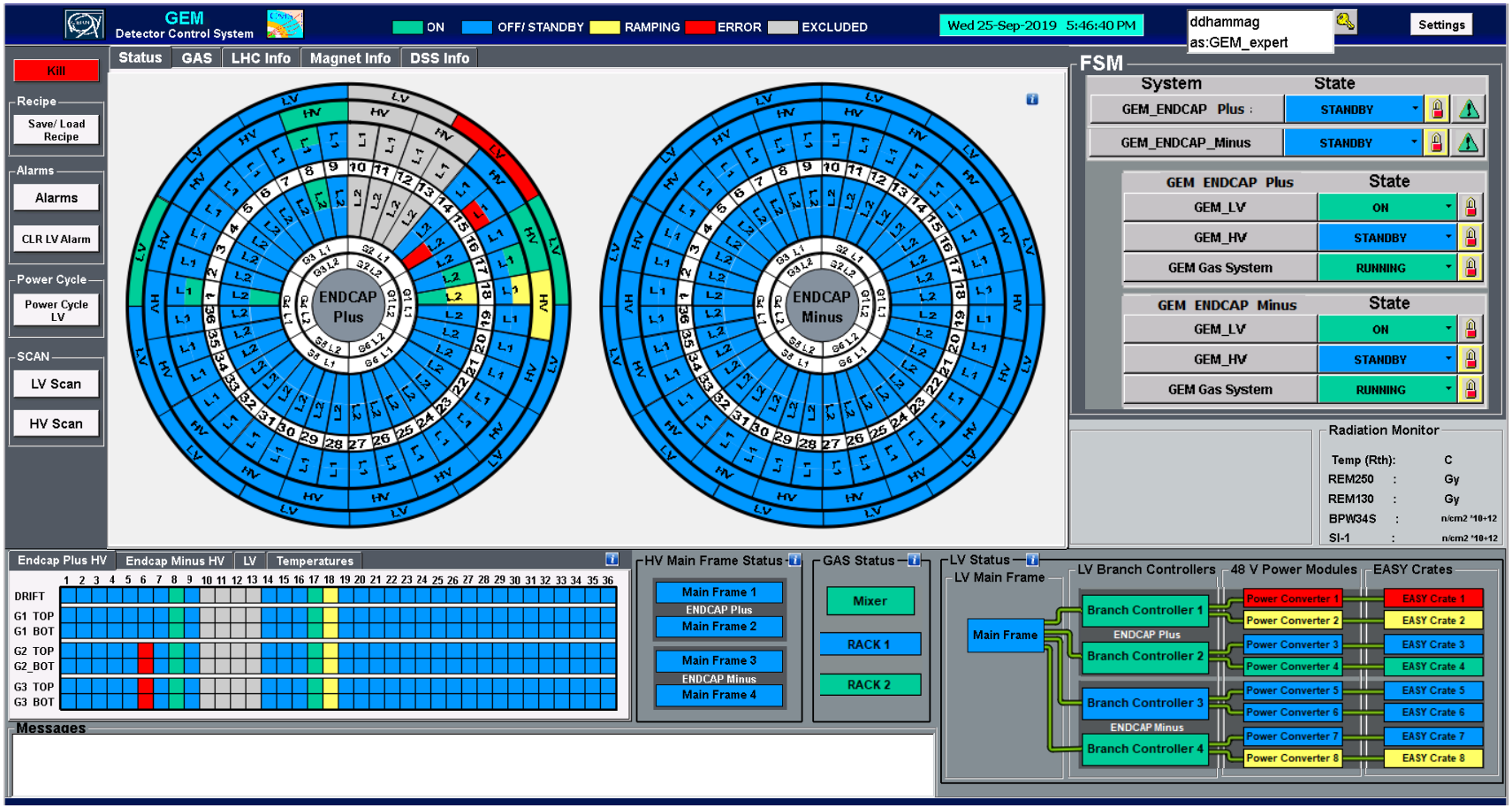
Deployed in central DCS

- ✓ DCS panels
  - ✓ Main DCS panel
  - ✓ Chamber status monitoring and controlling panels
  - ✓ Power supply status monitoring and controlling panels
  - ✓ LV, HV scan panels
  - ✓ LV power cycle panel
  - ✓ Trending plots
- ✓ Alarms and Archiving
- ✓ Database connections
- ❖ GAS system DCS panels
  - ❖ Main Gas DCS panel
  - ❖ Gas mixer status monitoring panels
  - ❖ Rack and flow cell status monitoring panels

Partially installed.
Have to be finalized

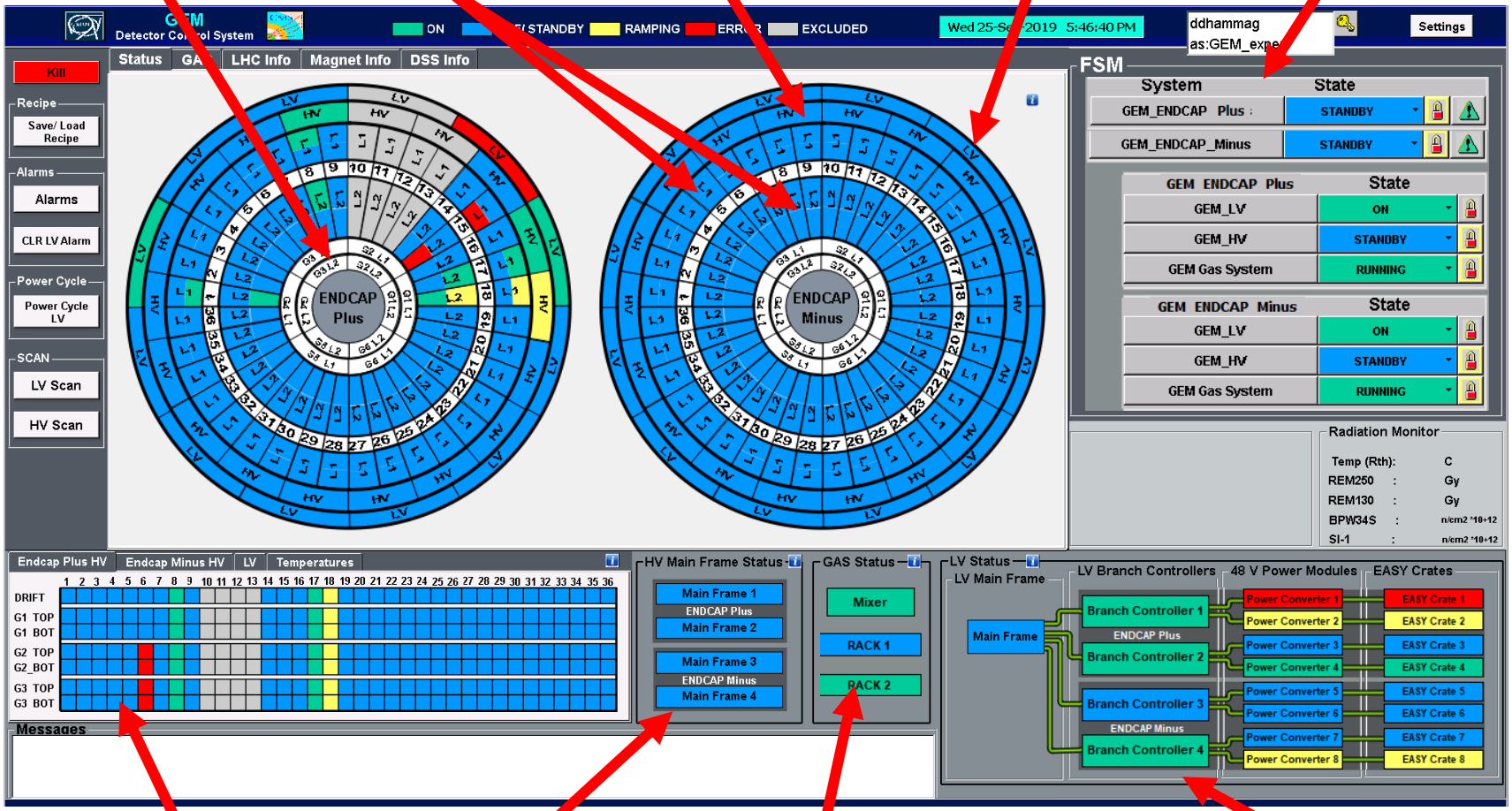
DCS Readiness

- Main DCS panel



DCS Readiness

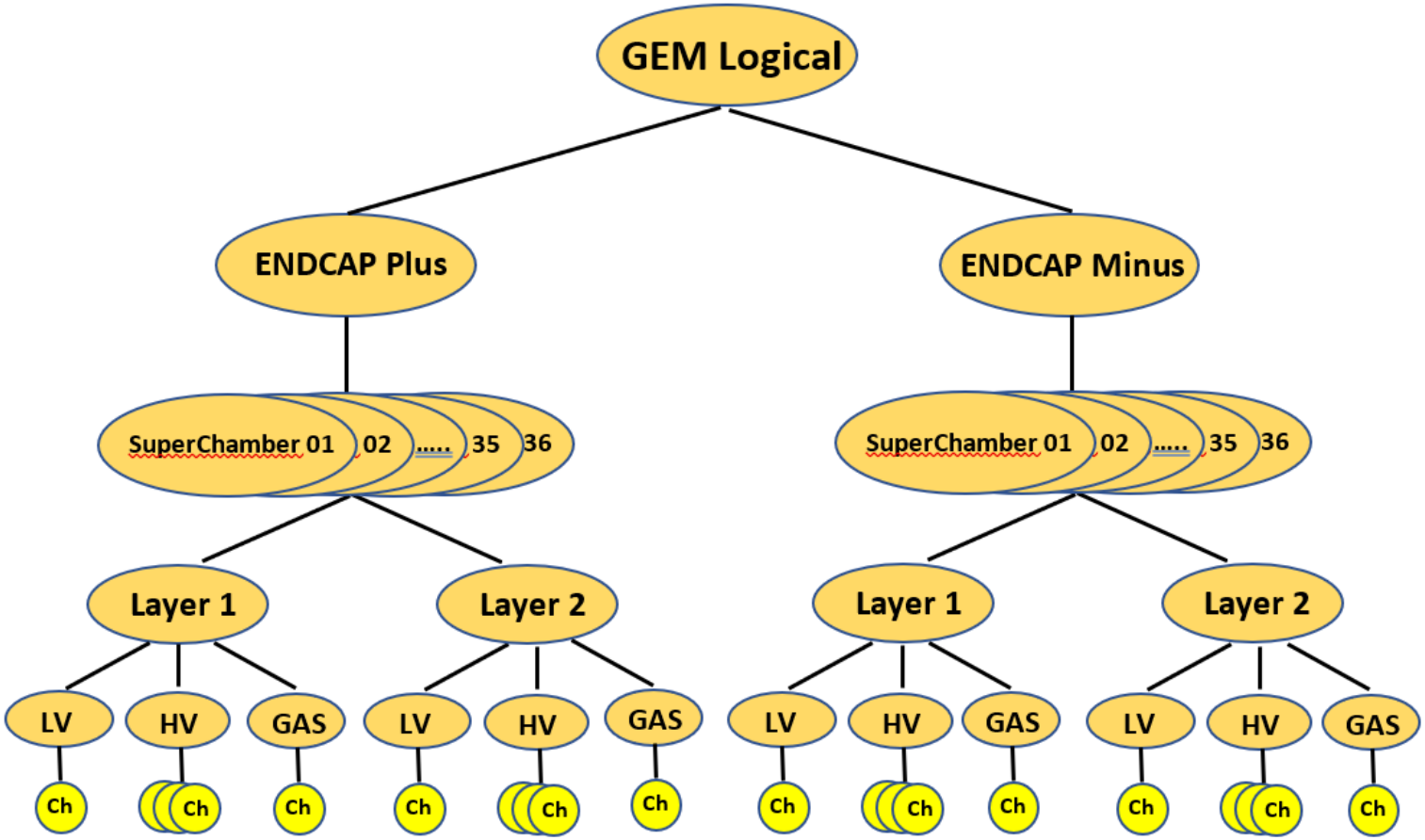
- Main DCS panel



DCS Readiness

UNDER FINALIZATION

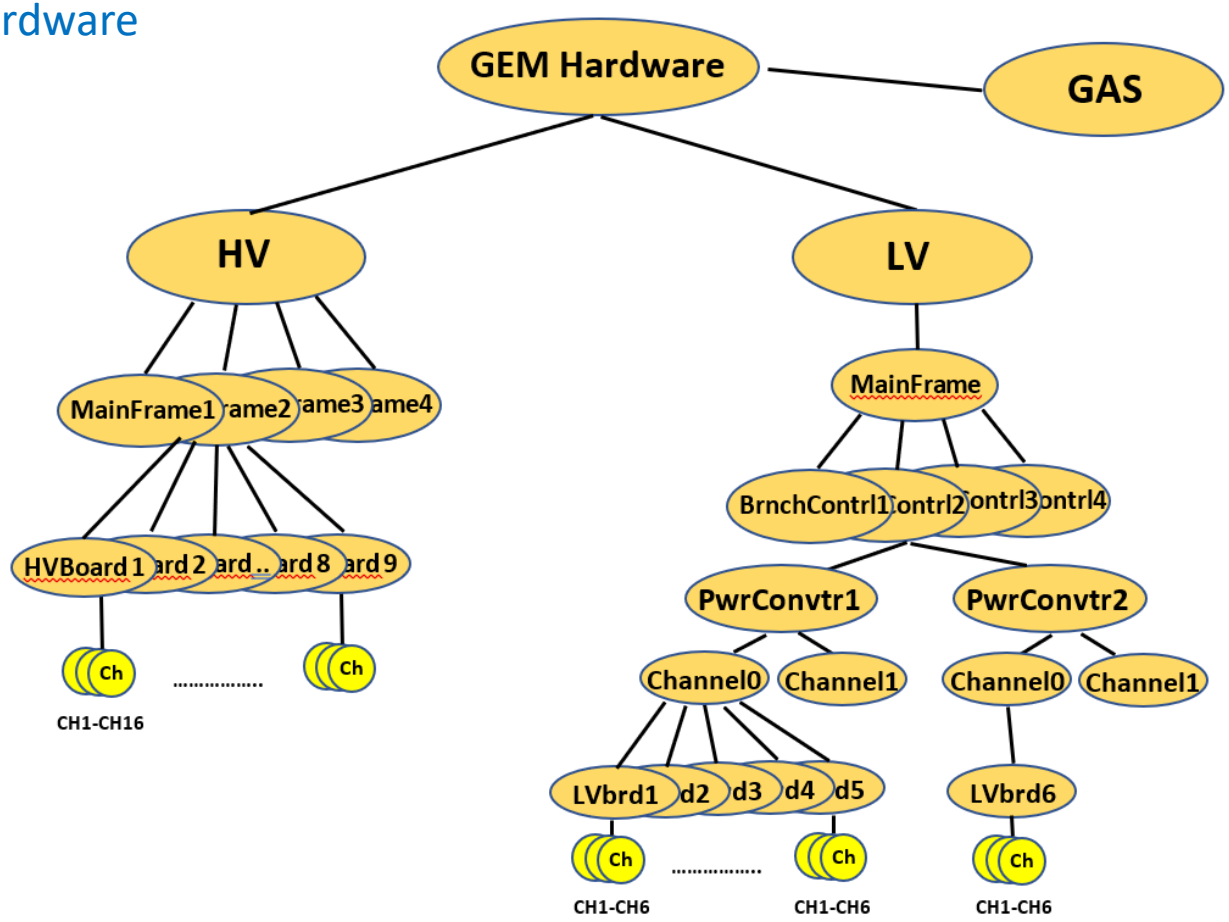
- FSM
  - FSM for chamber view is implemented and tested with the hardware



DCS Readiness

UNDER FINALIZATION

- FSM
  - FSM for hardware view is implemented and has to be tested with the hardware



DCS Readiness

NOT READY

- Rad-mon panels
- Detector protection system
- Offline monitoring tools
- Documentation:
  - Instructions for the shifters and operators

DCS Readiness

Where we are:-

- Development of most of the DCS project done on local machine, tested with “small” laboratory setups
- Used as much as possible parts that were “well-tried” in the slice test DCS to take advantage of previous experience
- All software components installed in cDCS are fully operational
- DCS panels, FSM in chamber view and Alerts are the minimum to run in central with cosmic, and will be ready for the Middle Week Global Run

DCS Readiness

Steps to unattended run :-

- FSM & Detector Protection are fundamental for running in central, but can be deeply tested only in “real” operation
  - FSM can be tested already with cosmic runs of the MWGR, where no beam time, as first test bench
  - Detector protection is mainly based on LHC beam mode → need to coordinate with cDCS to provide “fake LHC signals” for testing
    - We can re-adapt slice test detector protection
  - Details on how/when add GEM in FSM&DP to be discussed with cDCS
- A break-in period (with and without beam) in which a GEM shifter must be personally attending the subsystem when running, to allow to verify all the correct functionalities and establish routines
  - When 24h runs necessary, day/night shifts (e.g. 3x8h shifts) can be organized to ensure 24h coverage

DCS Timeline

- Deployment of the DCS panels → Done
- Gas DCS panels → 1 week
- GEM FSM
  - → Logical view → End of October
  - → Hardware view → Middle of November
- FSM inclusion → before end of the year (to be conformed with cDCS)
- Detector Protection → Spring 2020
- Action Metrix review → Summer 2020 – depending on TC/cDCS plans

Possible issues/support needed from the GEM

- This DCS contains 150+ individual panels and 20,000+ code lines
- Every thing is tested in development machine with small laboratory setup. Except Gas panels.
- Therefore there may be some hidden issues which we did not noticed.
- We suggest to do a DCS connectivity tests with all the HV, LV and gas channels without connecting chambers
- Then Perform a test run of DCS without connecting chamber with power supplies
- And database check

Possible issues/support needed from the GEM (ctd.)

- Temperature values in chambers are still not included in the DCS
  - Are there any temperature reading for the chambers?
- Racks monitoring (Turbine status and DAQ) are still not included

Thank You