



Forward Physics Detectors activities - LHC machine related - LS3

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Content

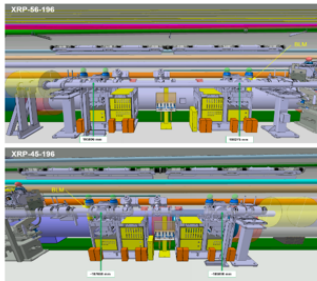
- **Chamonix : Physics experiments in the LHC machine**
- **PLAN Version 4 Timeline**
- **IT-CS cable request – LS3 project**

Experiments in the LHC Machine

Only PPS2 declared on PLAN

CMS-PPS Roman Pots at HL-LHC: PPS2

- The PPS2 project for HL-LHC is based on reusing existing Roman Pots and related equipment, with new detector packages.
- Pots on both side of IP5 at 196m, 220m, 234m
- Cooling system: Integration done based on the existing system
- Pots will be part of the remote alignment system
 - XRP-196 will be fully integrated into the remote alignment system (FRAS)
 - Other pots mounted on UAP for manual alignment



Overview of the cable and cooling pipe pathways

FASER

For LS3 small upgrades to FASER under discussion.
No civil engineering works expected or significant modifications to infrastructure

Advanced SND & SND in LHC

Consolidation & upgrade to extend the physics case in neutrinos and BSM searches. The project is still under discussion (not approved yet).

Run in Run4 with the upgraded detector positioned along the tunnel as it is

No civil engineering works validated

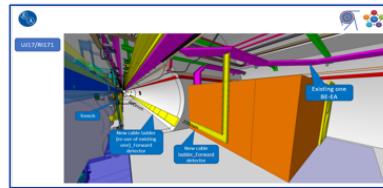
MoeDAL/MAPP2

MAPP Outtrigger detector and shielding installation.
All related activities have been fully studied (not yet approved)

ZDC at ATLAS

ZDC/ATLAS - Cable routing through US15 to TAXN:

- Cable ladder in RI171 + RI132 (transport side – for standard cables)
- Special Heliflex cables routed through survey gallery and behind QRLs with separate new cable ladders
- Civil Engineering Works: New trench required to pass from wall transport side to QRL side

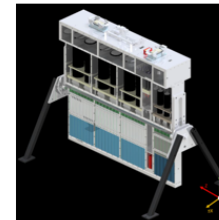


Cable rerouting P1

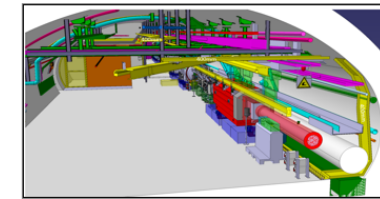
ZDC at CMS

ZDC/CMS – Cable routing from 1/2 rack UJ53/UJ57 to TAXN

- Cable ladder in RI532 + RI571 (transport side)
- For UJ57 (right side) new trench required to pass from wall transport side to QRL side (EDMS 30449202 – MCEW11)
- Particularity UJ53 (left side) – no trench (TAXN position in cavern)



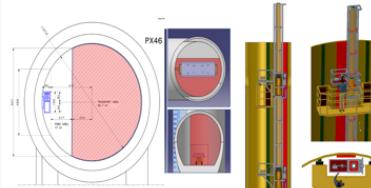
Latest detector design



Cable rerouting P5

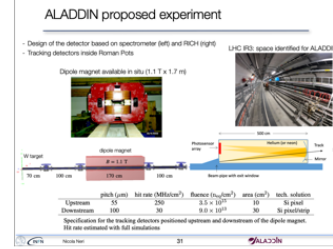
AION

53 institutes have signed the project.
They are considering next steps but are unsure if LS3 is a viable option.



Proposal layout

TWOCRIST → ALLADIN @ IR3



Measure Electromagnetic DM of Charm Baryons at LHC

Installation in IR3

Initial step TWOCRIST experiment (approved for data-taking in 2025)

LOI approved – Preparing TDR, input from TWOCRIST results

Envisage installation during LS3 for data-taking in Run 4.

LHC Experiments Committee (LHCC): — Approved

— Pending approval

— Not approved

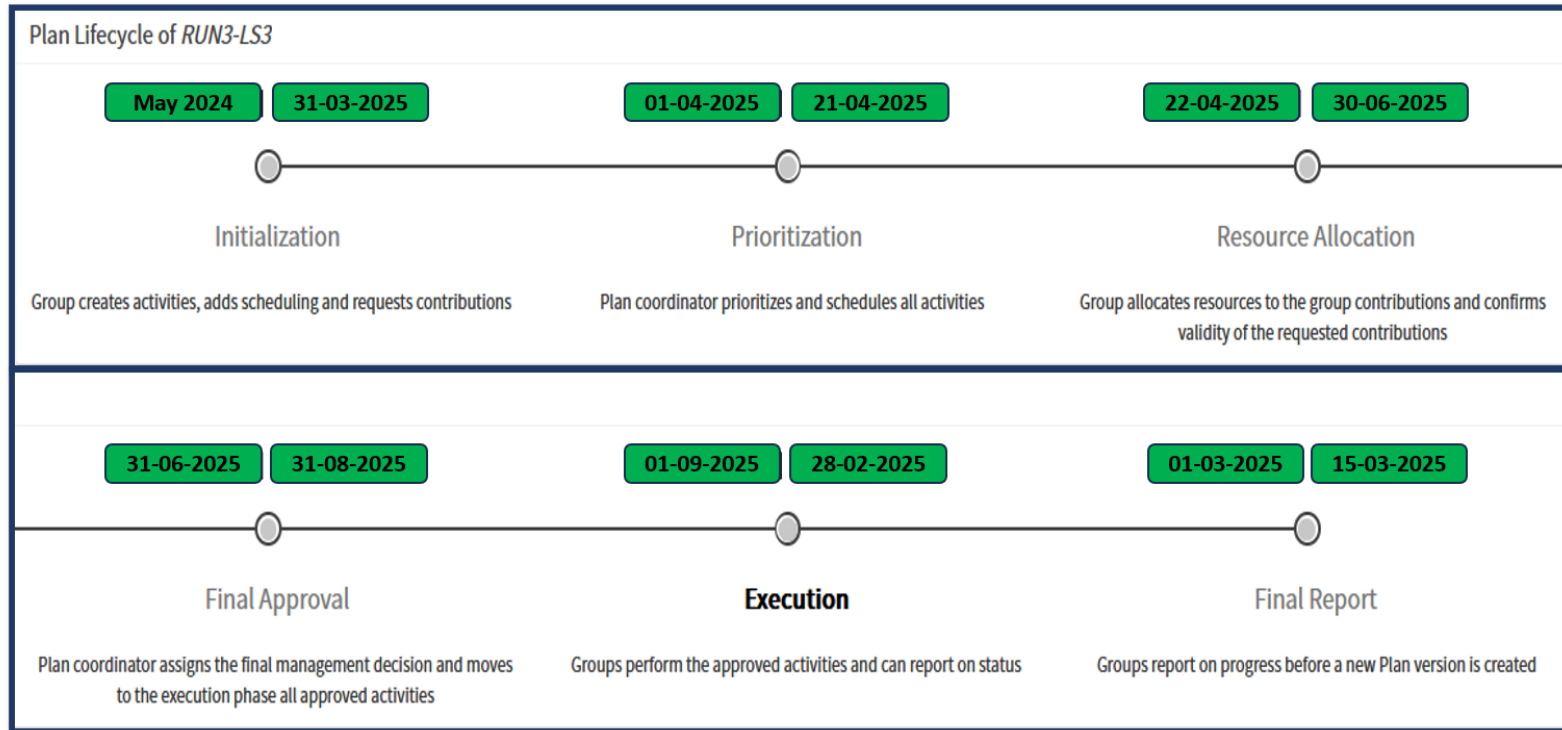


2025-01-28

Marzia Bernardini, Chamonix Workshop 2025, EDMS 3225465

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New PLAN iteration – forecast 2025 PLAN Version 4 Timeline



19-02-2025

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IT-CS: TN Switch and Router replacement

What needs to be done during LS3:

36 ROUTERS

652 SWITCHES

843 NETWORKS



Have to be done during the LS3 of PS, so in 1,5 years

~ 1year ~ 16 switches per week:
~ 6 months ~ 2 routers per week:

Resources needed by IT-CS-DO

Depending on the result of the tenders and process chosen for the replacement

Why:

- Obsolete hardware (15 years old)
- Switch (HP) and router (Juniper) EOL
- Upgrade from 1G to 10G

Consequences:

- Outage of the TN network for switches and routers
 - Switch: Around 30 to 60 minutes
 - Router: To be defined following the specification of the equipment. Can be transparent or take some hours.



Update IT-CS Group LS3 activities

19/02/2025

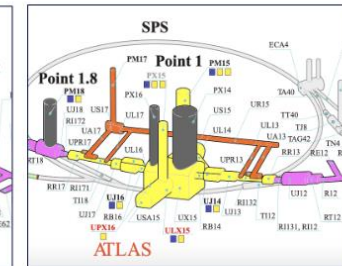
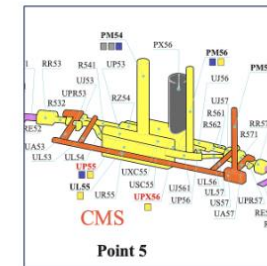
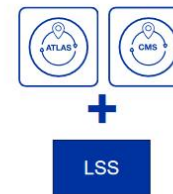
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Telecom cable installation and replacement

What needs to be done during LS3:

Radiating cable replacement in ATLAS, CMS and experiments in Meyrin.

- Total length not so impressive compared with LHC, but installation more complex because spaces very crowded



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19/02/2025

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Telecom cable installation and replacement

What needs to be done during LS3:

Replacement of the telecom cables in:

- Experiments in Meyrin (AD, ISOLDE, ...)
- ALICE during YETS25-26 or LS3 ?
 - To discuss with EN-EL who is in charge of the pulling of the cables



Improvement and new installation during LS3 for:

- IBDRS
- Awake



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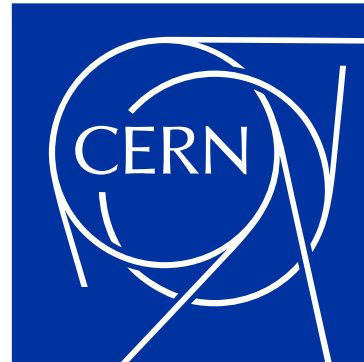
Important

Please **submit all requests** related to IT cabling (DC-IT) for the LS3 by SNow ticket :

<https://cern.ch/it-snow-ticket-cabling-request> **before 31 March 2025** (deadline extended due to the postponed start of LS3).



IT_cabling_requests_for_LS3_LHC-1.pdf



<https://cern.ch/be-dep-ea>