

ProtoDUNE-II Operations Update

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DUNE DAQ General Meeting

25 March 2024

General Schedule

- March 25-27: initial H4-VLE beam commissioning
- *March 26: target data for dunedaq fddaq-v4.4.0-rc1*
- *March 28-April 29: VD coldbox run*
 - *CRP and PDS tests: 3-25 April*
- *April 17: target data for final dunedaq fddaq-v4.4.0 release*
- Week of April 22: expected NP04 fill complete
- Week of May 13: expected NP04 nominal purity
- 19-26 June, 10 July – 21 August: draft dates for beam

fddaq v4.4.0 preparation

- Goal to include all features needed for ProtoDUNE-II HD Module 0
- Want to be complete and ready to support detector operations at end of LAr fill
- Features include ...
 - Updates on trigger types / storage in trigger records, especially for external triggers
 - Trigger algorithm additions and updates preparing for commissioning self-triggering with data
 - Improvements in readout / TPG performance and configurability
 - (Better) Integration with detector elements (DAPHNE config/control, CRT)
 - Updates in metadata creation for offline transfers
 - Fixes/improvements on user experience in nanorc, monitoring, error/warning messages in many places, etc.

Major outstanding work/issues

- DQM needs continued work and updates
 - *justintime* web-based display working, but needs updates to better extend functionality
- Using k8s as process manager requires debugging for operations use
 - Issues with proxy performance and robustness of run control interfaces to applications
- Readout server performance optimization
 - Even after configuration optimizations and implementation of callback mechanism to reduce data copies, still see some drops of data packets at NICs
- Additional integration (largely timing and control) with calibration devices

Upcoming testing plans

- Have set aside DAQ testing time from 10:00 to 12:00 CET
 - Can perform limited tests outside those times
- Specific tests that need to be done include...
 - Commissioning work with interface of CTB/DAQ with beam and CRT
 - “Data challenge” with offline to push on overall data rates
 - TPG and trigger testing, to be (hopefully) done as part of upcoming VD coldbox
 - Followups on timing checkout tests with the TPC electronics, and with calibration groups as they become available
- Need to be further preparing for commissioning TPG and self-triggering with data from NP04

DAQ experts / organization

- DAQ experts are needed to support ongoing activities
 - Monitoring runs of the TPC electronics → DAQ team monitoring runs during daytime Europe hours
 - Support for PDS detector runs and other specialized runs
- [Signup sheet here](#)
 - Need to check every few hours that the run is going, no major errors, sample of recent data is analyzable / looks ok
- Will need to ramp-up effort and support when detector is full
 - Coordination for activities being planned in weekly NP04 coordination meetings (e.g. [tomorrow's linked here](#))
 - Still awaiting more input on overall coordination of detector experts, shifters, etc.
- Holding regular operations meetings, often combined with release preparation meetings due to the overlap in many topics
 - Struggling to find a consistent good time, but generally 07:30 CDT on Tuesdays and Thursdays; meeting announced on general email list

Announcements

SPS schedule still the same as last week (and tentative). Waiting for the injector schedule:

- Additional (6) weeks of proton run? Likely NP04 beam will be delayed (2 weeks?)

3 weeks of overlap with NA61 on H2 (requires positive beam):

- H2 and H4 beam polarities (before secondary H4-VLE target) are correlated (same target).
- With negative hadrons, H4-VLE beam rates may be reduced

Commissioning of H4 beam line up to NP04 will start on Monday 25th for one week.
Access must be coordinated with beam experts through myself.

Moving to RP supervised zone (dosimeter required) in two steps:

- from the afternoon of 21st of March -> NP02 and NP04 trenches
- from beginning of June (if beam time assignment doesn't change) -> entire building

- How to get a dosimeter:

<https://dosimetry.web.cern.ch/dosimeters/how-obtain-dosimeter#employed-associated-members>

- Access to NP04 trench and roof remains restricted till NP04 is full. Risk Assessment:

<https://edms.cern.ch/document/3027488/1>

Comments / questions?

DAQ Monitoring

- Have agreed with TPC and PDS consortia that ...
 - We will continue to monitor runs with the TPC electronics during CERN daytime hours
 - Make sure that data runs are going, restart if needed
 - Have a standard testing time of 10:00-12:00 CET
 - Can do more tests as needed, but should make sure we pause and take noise data
 - PDS group can take their own data, but may need general help/support if there are DAQ issues
- Signup sheet for monitoring runs extended:
<https://docs.google.com/spreadsheets/d/1nwK9qWIRFIHMpT5eqenMlbYEHXky9kwjqCPp2fAbiCE/edit#gid=0>
 - Please sign up!