# DAQ Control Configuration and Monitoring WG

The CCMWG (short for Control Configuration and Monitoring WG) has the mandate to develop, implement, commission, validate and maintain the DUNE Control, Configuration and Monitoring system that enables to coherently operate the DUNE experiment during data-taking, operating the DAQ and other DUNE systems coherently, reliably and with high efficiency.

The group proposes the architecture of the Control system, based on modern experimental DAQ systems of medium/large scale and leveraging the experience of ProtoDUNE.

It defines policies and rules for resource and application management to guarantee adequate level of flexibility and reliability for a partitionable system. It works out a model of access control for acting on the DAQ system at different levels (e.g. visualization, operation, administration), in collaboration with the Online computing experts (Facility WG).

In coordination with DFWG (Dataflow), UDWG (Upstream DAQ) and DSWG (Data Selection), the CCMWG group defines the procedures to setup, configure and execute data-taking runs and carries out design, prototyping, benchmarking and implementation of the DUNE Run Control. The CCMWG defines strategies to maximize the DUNE data taking efficiency (exploiting early fault detection and recovery, seamless between different data taking partitions and with external systems e.g. calibrations), designs and implements the DUNE Supervisor that automatically applies such strategies to minimize the operational downtime.

The CCMWG leads the design the DUNE online configuration schema for holding all data-taking relevant parameters, in collaboration with the other DAQ system and detectors, harmonizing the approach to online configuration for all online applications. It designs and develops appropriate tools and interfaces (graphical, command-line, etc.) to view, edit and validate configurations. It develops and maintains the software libraries to access to DAQ configurations from online software applications.

The CCMWG defines strategy to collect, aggregate and store the operational monitoring data for all online applications. It develops and maintains software packages for publishing monitoring data and the software services to aggregate, archive, re-distribute and visualize monitoring messages and information.

It is a responsibility of the CCMWG to identify suitable technologies for each deliverable, evaluating existing solutions against cost, effort, support and long-term maintenance and, developing a custom one when no suitable one is available. The group works in close collaboration with the DFWG on the DUNE application framework plugins to access control configuration and monitoring services, as well as on the development of the DUNE inter-process communication. The CCMWG pursues a tight integration between CCM and other DAQ sub-system. To this end the group coordinates and leads the integration effort with other DAQ working groups at all stages of the project.   
  
In the DAQ coordination team, the DS WG coordinators participate to the shaping of the overall DAQ system, with particular attention control, configuration and monitoring aspects; they report on the results obtained in the WG and raise any issue that was observed in the WG and needs to be addressed across WG boundaries.