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CLAS Experimental Control System

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Software agent based control system is implemented to control experiments running on the CLAS detector at Jefferson Lab. Within the CLAS experiments DAQ, trigger, detector and beam line control systems are both logically and physically separated, and are implemented independently using a common software infrastructure. CLAS experimental control system (ECS) was designed, using earlier developed FIPA agent based control framework, to glue the data production subsystems into the uniform control environment. The object models of the experiments are described using the developed Control Oriented Ontology Language (COOL), allowing detailed specification of the experimental objects such as their states, actions and associated conditions. Experiment objects are assigned Java agents, grouped into the control domains, operating in the open and distributed, multi-agent environment. Every agent domain, representing experiment subsystem, can operate independently, yet can summarize information for the above level domains or expand actions to the lower levels.

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