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C2MON: a modern open-source platform for data acquisition, monitoring and control

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The CERN Control and Monitoring Platform (C2MON) is a modular, clusterable framework designed to meet a wide range of monitoring, control, acquisition, scalability and availability requirements. It is based on modern Java technologies and has support for several industry-standard communication protocols. C2MON has been reliably utilised for several years as the basis of multiple monitoring systems at CERN, including the Technical Infrastructure Monitoring (TIM) service and the DIAgnostics and MONitoring (DIAMON) service. The central Technical Infrastructure alarm service for the accelerator complex (LASER) is in the final migration phase. Furthermore, three more services at CERN are currently being prototyped with C2MON.

Until now, usage of C2MON has been limited to internal CERN projects. However, C2MON is trusted and mature enough to be made publically available. Aiming to build a user community, encourage collaboration with external institutes and create industry partnerships, the C2MON platform will be distributed as an open-source package under the LGPLv3 licence within the context of the knowledge transfer initiative at CERN.

This paper gives an overview of the C2MON platform focusing on its ease of use, integration with modern technologies, and its other features such as standards-based web support and flexible archiving techniques. The challenges faced when preparing an in-house platform for general release to external users are also described.

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