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P3.039 Designing CODAC System for Tokamaks Using Web Technology

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ITER CODAC is the most sophisticated tokamak control and data acquisition system. The core of ITER CODAC is built around the EPICS toolkit. EPICS is very mature in accelerator community. However, there are still works trying to improve existing control system software like tango and EPICS 7 mainly driven by the needs of more flexible system and development of computer technology. This paper present a new way of building a CODAC system for tokamaks using web technology instead of EPICS toolkit. The control system components are abstracted into resources. The accessing of the resources is done via standard HTTP RESTful web API. HMI is based on HTML and JavaScript in browsers. WebSocket is used to improve the efficient of event distribution. The main feature of this design is all the interfaces in the system are based on open and industrial web standards, which are interoperable among almost all kinds of server and client technology. The paper also presented a software toolkit to build this CODAC system. With it, a data acquisition system for ECEI diagnostics was built and presented.

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