MARTe2 and MDSplus integration for a comprehensive fast control and data acquisition system

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Fus. Eng. and Design **161** (2020) 111892; https://doi.org/10.1016/j.fusengdes.2020.111892

Abstract:

MARTe is a framework for real-time control that has been used in several fusion experiments. Recently, a new version named MARTe2 has been developed adhering to software quality standards. MDSplus is a data system widely adopted in the fusion community. MDSplus provides fast data acquisition and access to pulse files and is intended to provide a complete interface both for the configuration of the experiment and the experimental results. MDSplus and MARTe2 are already integrated via a set of components that are able to store a data stream originated in real-time in the pulse file and get experiment set-up information. A further integration is proposed here, that is, using the Device abstraction provided by MDSplus to specify the components involved in the data acquisition process and MDSplus expressions to specify data relationships, in order to describe also the real-time components and the associated data flow. Following this approach, the whole real-time configuration will be described exactly as the rest of the other non real-time data acquisition components and the corresponding MARTe2 configuration will be generated on the fly, integrating all the required consistency checks.