

Exploring MDSplus data-acquisition and analysis software with JupyterLab

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MDSplus is a software tool dedicated to data acquisition, storage and analysis used for complex scientific experiments. MDSplus has been used for data management for fusion experiments for years, and this paper will demonstrate it can be used for a wide variety of systems as well. We will show how to set up a very simple experiment, manage data retrieval, storage and consumption using MDSplus and Python.

A custom device is used as the data provider. This device is an open-source electronics platform hardware that consists of a microcomputer and sensors. It will be able to read inputs from the sensors and the data collected will then be stored in the MDSplus tree structure for future analysis and processing.

JupyterLab is used as the interactive development environment. It allows for code development, notebooks and data visualization. In it, our MDSplus device will be defined, executed and the results will then be visualized and explored.

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