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P2.036 The new W7-X Logbook - A Software for Effective Experiment Documentation and Collaborative Research at Wendelstein 7-X

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Wendelstein 7-X (W7-X) completed its second operation phase (OP1.2a) in December 2017. A large number of diagnostics were operated in nearly 1000 experiment programs by an international research team. For the documentation of W7-X experiment programs, a new electronic logbook software was developed and eventually used for the first time in OP1.2a. The software was designed for the needs of W7-X researchers: a web-based logbook application for the whole team. For an effective documentation, greater part of the logbook content comes from automatically generated logs, complemented by users via web browser. The W7-X control software generates log entries for experiment programs during the program execution. This includes an automatic extraction of configuration information from the planned program, which is later represented as searchable tags within the logbook. The logbook allows full-text search and range queries for numeric values: both with response times within milliseconds. Separate component logs are created in the same way for W7-X diagnostics and machine sub-systems for different use cases, e.g. experiment programs, standalone tests, or calibrations. The logbook allows adding rich-text comments to all logs, which also includes links and images. The web page of each experiment program log contains overview plots from measurement data, generated on the fly from data from the W7-X archive. For each W7-X component, the logbook also provides a separate web page, which is editable by the responsible officer. The pages contain descriptions, log overviews, and links to measurement data. Next to the website interface based on HTML5 and JavaScript, the logbook provides a RESTful web service, which allows reading and writing of logbook data as JSON. These features are making the logbook an excellent experiment journal, which was quickly adopted by the W7-X team and appreciated as a crucial tool for experiment documentation and starting point for data analysis.

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