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WEST CODAC software quality management

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Control, Data Acquisition and Communication (CODAC) real-time software codes are key elements for the operation of a fusion device as they can play a key role both for the machine protection and for the optimization of the experiments. The updating or upgrading of these software codes may be needed quite frequently in order to either correct bugs or include new functionalities, while these code modifications may introduce new errors or bugs that may have an impact on machine operational availability or even on some machine protection items.

A new software quality management process has been developed and implemented in the WEST (W -for tungsten- Environment Steady-state Tokamak) CODAC in order to tackle these issues. Each source code modification, defined by a unique identifier called “production tag version”, is logged by the corresponding responsible officer, reported to the relevant team and finally submitted to validation by the relevant team leader. The scheduling of the deployment of any new version in the WEST CODAC package is coordinated at the appropriate level in order to minimize the possible impact on operation.

The “production tag version” of each software code is also archived for each pulse as well as the pulse parameters, which allows coming back to a previous version whenever needed.

The paper will first describe in details the principles used for the new WEST CODAC software quality management. The workflow process and associated tools will then be discussed. A few examples will eventually be detailed.

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