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PREP: Production and Reprocessing management tool for CMS

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The production of simulated samples for physics analysis at LHC represents a noticeable organization challenge, because it requires the management of several thousands different workflows. The submission of a workflow to the grid based computing infrastructure is just the arrival point of a long decision process: definition of the general characteristics of a given set of coherent samples, called campaign; definition of the physics settings to be used for each sample corresponding to a specific process to be simulated, both at hard event generation and detector simulation level. In order to have an organized control of the of the definition of the large number of MC samples needed by CMS, from the initial request to the acknowledgment of the completion of each sample, a dedicated management tool, called PREP, has been built. Its basic component is a databased storing all the relevant information about the sample and the actions implied by the workflow definition, approval and production. A web based interface allows the database to be used from experts involved in production to trigger all the different actions needed, as well as by normal physicists involved in analyses to retrieve the relevant information. The tool is integrated through a set of dedicated APIs with the production agent and information storage utilities of CMS.

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