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BM@N Run 8 data processing on a distributed infrastructure with DIRAC

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The BM@N 8th physics run using Xenon ion beams was successfully completed in February 2023, resulting in the recording of approximately 550 million events. These events were recorded in the form of aproximately 30000 files, with a combined size exceeding 400 TB. The processing of the BM@N files is done in two steps: converting files from Raw format to Digi and on the next step converting from Digi to Dst. This process requires significant computing resources, which is why a distributed infrastructure united by DIRAC was chosen for this task. New methods were developed to make the data processing robust and repeatable. For the first time DIRAC had been used for raw data processing in JINR in production mode. The conversion of BM@N files from Raw to Digi became the most data intensive task solved so far on a distributed infrastractue. A set of approaches, systems, and methods were developed during this data production campaign, whichs help to reduce the efforts required for the next data productions at JINR.

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