

Software packaging and distribution for LHCb using Nix

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Software is an essential and rapidly evolving component of modern high energy physics research. The ability to be agile and take advantage of new and updated packages from the wider data science community is allowing physicists to efficiently utilise the data available to them. However, these packages often introduce complex dependency chains and evolve rapidly introducing specific, and sometimes conflicting, version requirements which can make managing environments challenging. Additionally, there is a need to replicate old environments when generating simulated data and to utilise pre-existing datasets.

Nix is a “purely functional package manager” which allows for software to be built and distributed with fully specified dependencies, making packages independent from those available on the host. Builds are reproducible and multiple versions/configurations of each package can coexist with the build configuration of each perfectly preserved.

Here we will give an overview of Nix followed by the work that has been done to use Nix in LHCb and the advantages and challenges that this brings.

Primary authors: BURR, Chris (University of Manchester (GB)); COUTURIER, Ben (CERN)

Presenter: BURR, Chris (University of Manchester (GB))

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