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Building HEP Software with Spack: Experiences from Pilot Builds for Key4hep and Outlook for LCG Releases

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Consistent, efficient software builds and deployments are a common concern for all HEP experiments. These proceedings describe the evolution of the usage of the Spack package manager in HEP in the context of the LCG stacks and the current Spack-based management of Key4hep software. Whereas previously Key4hep software used spack only for a thin layer of FCC experiment software on top of the LCG releases, it is now possible to build the
complete stack, from system libraries to FCC-, iLCSoft- and CEPC software
packages with Spack. This pilot build doubles as a prototype for a Spack-based
LCG release. The workflows and mechanisms that can be used for this purpose,
potential for improvement as well as the roadmap towards a complete LCG release in spack are discussed.

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