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Evolution of ROOT package management

ROOT is a large code base with a complex set of build-time dependencies; there is a significant difference in compilation time between the "core"of ROOT and the full-fledged deployment. We present results on a "delayed build"for internal ROOT packages and external packages. This gives the ability to offer a "lightweight" core of ROOT, later extended by building additional modules to extend the functionality of ROOT. As a part of this work, we have improved the separation of ROOT code into distinct modules and packages with minimal dependencies. This approach gives users better flexibility and the possibility to combine various build features without rebuilding from scratch.

Dependency hell is a common problem found in software and particularly in HEP software ecosystem. We would like to discuss an improvement of artifact management ("lazy-install") system as a solution to the "dependency hell"problem. HEP software stack usually consists of multiple sub-projects with dependencies. The development model is often distributed, independent and non-coherent among the sub-projects. We believe that software should be designed to take advantage of other software components that are already available, or have already been designed and implemented for use elsewhere rather than "reinventing the wheel". In our contribution, we will present our approach to artifact management system of ROOT together with a set of examples and use cases.

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