

HEP Packaging Coordination: Reproducible reuse by default

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While advancements in software development practices across particle physics and adoption of Linux container technology have made substantial impact in the ease of replicability and reuse of analysis software stacks, the underlying software environments are still primarily bespoke builds that lack a full manifest to ensure reproducibility across time. The HEP Packaging Coordination community project is bootstrapping packaging of the broader community ecosystem on conda-forge. This process covers multi-platform packaging from low level language phenomenology tools, to the broader simulation stack, to end user analysis tools, and the reinterpretation ecosystem. When combined with next generation scientific package management and manifest tools, the creation of fully specified, portable, and trivially reproducible environments becomes easy and fast, even with the use of hardware accelerators. This ongoing process significantly lowers technical barriers across tool development, distribution, and use, and when combined with public data products provides a transparent system for full analysis reinterpretation and reuse.

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