

Software packaging AIDA++ proposal

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How can I use \$PACKAGE?

- Production environments are inflexible for end users
- Source a “magic” script?
 - Requires AFS/CVMFS
 - Might work on SLC6/CC7, very unlikely to work on other systems
 - Often difficult to combine with other packages
- Compile it locally?
 - What are the dependencies? How do I get them?
 - Often slow, especially when using distributed file systems
- Both options are hard to reproduce, preserve or distribute

Conda

- Platform, architecture and language independent package manager
- Extremely popular in the wider community
- Community driven support from conda-forge
 - PyData supported project with strong ties to Anaconda Inc.
 - Contains over 7,000 packages
 - I have merge rights to add new packages
- Over the previous year I've been involved in:
 - Adding ROOT (downloaded almost 25,000 times in the first 5 months)
 - Also added XRootD, scikit-hep packages, Pythia8, grid middleware
 - Reviewed packages for GEANT4, alphaswirl, Fireworks (CMS), HepMC, ...
 - Reviewed many packages from outside of HEP

Projects in HEP

- Make AIDA(++) packages more accessible
 - **Make it possible to mix and match AIDA packages without compiling**
 - Make the pre-existing build systems more robust
 - Support for alternative platforms (ARM, POWER, macOS, Windows)
- Packaging within HEP
 - Ties to other projects: `scikit-hep`, IRIS-HEP, ...
 - Nightly builds of ROOT
 - Distributing user environments to CVMFS

Generally useful projects

- Improvements to conda and conda-forge with a wider impact
 - **Make it easy to set up development environments**
 - Compiler package improvements
 - Better automation for adding and maintaining packages
 - **Long term preservation of user environments**
- Could also involve work with other package management tools
 - Python wheels, Spack, ...

Questions and links

- Any questions?
- Links
 - [conda-forge](#)
 - [ROOT on conda-forge](#)
 - [30th January 2019 - HSF Packaging WG meeting](#)