

Large Scale Software Building with CMake in ATLAS

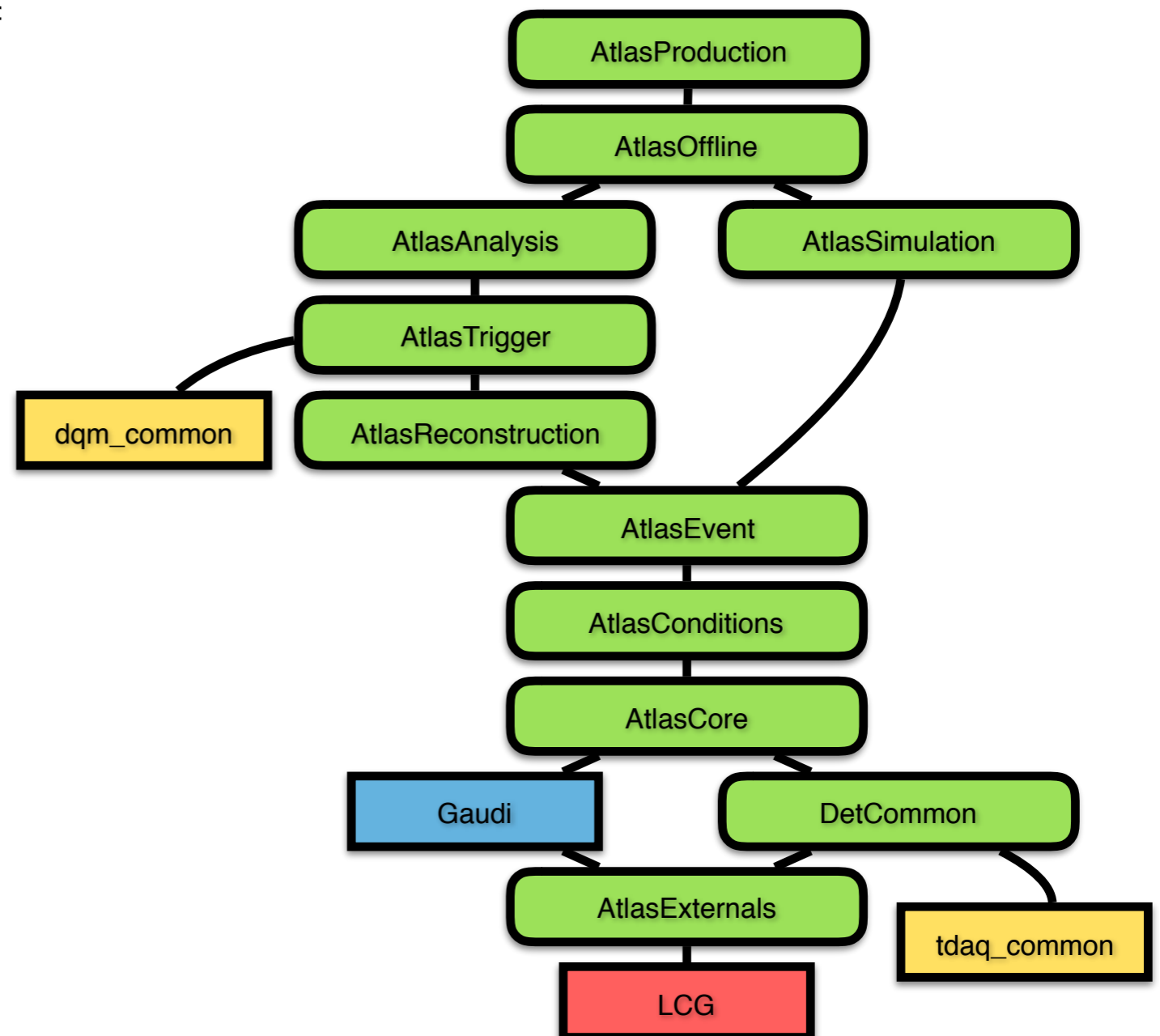
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The ATLAS Software

- The ATLAS offline software is composed of millions of lines of C++ and Python code packaged into >2000 software packages
- Packages are organised into projects, which then make up an entire software release
- ATLAS defines software projects and releases of different sizes put together from the same underlying packages, for different (simulation, reconstruction, analysis) purposes



CMT → CMake

- ATLAS switched to using CMake to configure the build of its software projects
- Writing a set of CMake configuration functions/macros for easily describing how to build libraries/executables in this project structure
 - Translating the old per-package configuration files of CMT into per-package CMakeLists.txt files
 - The configuration allows to easily build just a few packages on top of a full release. Not requiring the user to rebuild the entire project during software development.
- By now switching the development branch of all software projects to use this new configuration

Performance

- Building the full ATLAS offline release was sped up by ~40% as a result of the switch
 - Also allowing a great simplification in the build environment, not having to rely on a build farm
- Further improvements are still on the horizon with simplifications planned for the offline project structure

