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Evolution of the ATLAS Nightly Build System

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The ATLAS Nightly Build System is a major component in the ATLAS collaborative software organization, validation, and code approval scheme. For over 10 years of development it has evolved into a factory for automatic release production and grid distribution. The 50 multi-platform branches of ATLAS releases provide vast opportunities for testing new packages, verification of patches to existing software, and migration to new platforms and compilers for ATLAS code that currently contains 2000 packages with 4 million C++ and 1.4 million python scripting lines written by 1000 developers. Recent development was focused on the integration of ATLAS Nightly Builds and Installation systems. The nightly releases are distributed and validated and some are transformed into stable releases used for data processing worldwide. The ATLAS Nightly System is managed by the NICOS control tool on a computing farm with 50 powerful multiprocessor nodes. NICOS provides the fully automated framework for the release builds, testing, and creation of distribution kits. The ATN testing framework of the Nightly System runs unit and integration tests in parallel suites, fully utilizing the resources of multi-processor machines, and provides the first results even before compilations complete. The NICOS error detection system is based on several techniques and classifies the compilation and test errors according to their severity. It is periodically tuned to place greater emphasis on certain software defects by highlighting the problems on NICOS web pages and sending automatic e-mail notifications to responsible developers. These and other recent developments will be presented and future plans will be described.

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