

C++ as a service — rapid software development and dynamic interoperability with Python and beyond

Interactive C++: cling and clang-repl

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Status of Cling development

- ❖ Release of cling v0.8
 - ❖ Last llvm-5 based release
- ❖ Currently Cling is being upgraded to LLVM9
 - ❖ Complete -- we have 0 failing tests
 - ❖ The relevant branches cling, clang, llvm
 - ❖ Integration in ROOT — ~5 failing tests (likely correlated)
 - ❖ ROOT pull request - PR6385
- ❖ Work on GitHub CI Actions [Pratyush Das]
 - ❖ Done. Remains adjusting coverity and codecov.

Status

- ❖ The next llvm blog post was released — <https://blog.llvm.org/posts/2020-12-21-interactive-cpp-for-data-science/>
- ❖ Progress on llvm patches:
 - ❖ Completed <https://reviews.llvm.org/D92248>,
 - ❖ Completed <https://reviews.llvm.org/D91061> (Relevant ROOT adjustment — [PR6770](#))
 - ❖ Working on <https://reviews.llvm.org/D91524>
- ❖ We have invited Alexandru Militaru at our Feb meeting to talk about D bindings with cppyy / cling

Status

- ❖ Initial, very limited, version of Clang-Repl can be found [here](#) It captures the basic cling design and it is intended to go upstream llvm (after rigorous code review)
- ❖ Early stage technical specification of the language interoperability layer — [here](#).
 - ❖ We have not yet made a second revision based on this discussion. Meanwhile, additional comments are welcome.

Next Month Plans

- ❖ Propose a patch against clang for libIncremental (aka clang IncrementalAction)
- ❖ Prepare a third blog post
- ❖ Second revision of the interoperability spec

CaaS Open Projects

- ❖ Patches against clang.git
 - ❖ [Implement FileManager uncaching](#)
 - ❖ [Adapt the user of invalidateCache to its new signature](#)
 - ❖ [Mark the file entry invalid, until reread](#)
 - ❖ [Propagate cache flags from LookupFile\(\) to FileManager::getFile\(\)](#)
 - ❖ [Pass the OpenFile flag also to DirectoryLookup](#)
 - ❖ [Do not load the source file just to get an irrelevant SourceLoc \(ROOT-7111\)](#)
 - ❖ [Allow interfaces to operate on in-memory buffers with no source location info](#) [Pratyush Das]
- ❖ Infrastructure
 - ❖ GitHub PR Code Coverage — see [this example](#).
 - ❖ Automatically upload nightlies to a special release tag — see [this example](#).
- ❖ Packaging
 - ❖ Improve cpt -- fix deb package creation; use python instead of calls to mv, wget, etc.

Next Meetings

- ❖ Monthly Meeting — 4th Feb, 1700 CET / 0800 PST

If you want to share your knowledge / experience with interactive C++ we can include presentations at an upcoming next meeting

Thank you!