

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

Interactive C++: cling and clang-repl

Vassil Vassilev

04.05.2023

Status. Cling

- ❖ No news here: We need to fix 6 tests in Cling

Status. Clang-Repl

- ❖ Incremental Input (RFC)
 - ❖ D143142 — Enable Lexer to grow its buffer
 - ❖ D143144 — Add TryGrowLexerBuffer / SourceFileGrower
 - ❖ D143148 — Add basic multiline input support
- ❖ Value Handling (RFC)
 - ❖ D141215 — Introduce Value and implement pretty printing. Quite far down the review process.
 - ❖ D146389 — Initial interactive CUDA support for clang-repl. Almost ready.

The goal is to provide better stability and robustness which can later cling can reuse.

Status. InterOp

- ❖ Implemented allocate / deallocate interfaces
- ❖ Implemented Construct / Destruct interfaces
- ❖ Enabled smart pointer support
- ❖ Enabled debugging output (llvm::DebugFlag)
- ❖ Enabled debugging jitted code (clang-repl mode only)
- ❖ Added CI builds that enable valgrind checks
- ❖ Rebased to our cppyy forks.
- ❖ libInterOp-based cppyy: passes 170 / 504 tests.

Status. Clad

- ❖ Code refactoring of the tests infrastructure
- ❖ Added constexpr and consteval test cases
- ❖ Improved support of 32bit
- ❖ Fixed bugs in clad::array init

Status. Xeus-Clang-Repl/Xeus-Cpp

- ❖ Fixed a bug in declaration / statement disambiguation D147319

Upstreaming Patches

- ❖ Spreadsheet tracking the progress here.
- ❖ Total amount of upstreamed cling patches 26(26+0) out of 52 upstreamable.

CaaS Open Projects

- ❖ Open projects are tracked in our [open projects page](#).

Next Meetings

- ❖ Monthly Meeting — 1st June, 1700 CET / 0800 PDT

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

Thank you!