

C++ Club UK Meeting 120

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2021-01-28

C++ Working Draft 1990

- Google Drive
 - Reddit

2020-12 C++ committee mailing

- Mailing
 - P0561R5: An RAII Interface for Deferred Reclamation
 - P1072R6: `basic_string::resize_and_overwrite`
 - P1102R2: Down with ()!
 - P1689R3: Format for describing dependencies of source files
 - P2175R0: Composable cancellation for sender-based async operations
 - P2186R1: Removing Garbage Collection Support
 - P2213R1: Executors Naming
 - P2216R1: `std::format` improvements
 - P2248R1: Enabling list-initialization for algorithms
 - P2265R0: Renaming `any_invocable`
 - P2273R0: Making `std::unique_ptr` constexpr
 - P2274R0: C and C++ Compatibility Study Group

2021-01 C++ committee mailing

- Mailing, Reddit
 - P0447R12: Introduction of `std::colon` to the standard library
 - P1682R2: `std::to_underlying` for enumerations
 - P2168R1: `std::generator`: Synchronous Coroutine Generator for Ranges
 - P2279R0: We need a language mechanism for customization points
 - P2287R0: Designated-initializers for Base Classes
 - P2232R0: Zero-Overhead Deterministic Exceptions: Catching Values
 - P0709R0: Zero-overhead deterministic exceptions: Throwing values
 - Boost.LEAF

Perhaps it's time for a more opinionated dialect of C++

- [Reddit](#)
- Should I litter my code with (the correct) attributes for every function, or just leave it pretty?

Latest C++: theory vs. reality

- Reddit
 - Godot game engine C++ standard thread on GitHub

C++ vs Rust performance

- [Reddit /r/cpp](#)
 - [Reddit /r/rust](#)

If you were allowed to make breaking changes to the C++ specification, what features would you modify/replace/remove to make the language better?

- Reddit

A Year of Conference Talks from the Microsoft C++ Team

- Sy Brand
 - Reddit

mocxx: a versatile C++ function mocking framework based on Frida, by Guardsquare

No macros! Doesn't support mocking virtual functions yet.

- [Reddit](#)
 - [GitHub](#) (C++17, GPL-3.0)
 - [Frida - Dynamic instrumentation toolkit for developers, reverse-engineers, and security researchers](#)
 - [Explanatory blog post at Guardsquare](#)

Compile 1 Million Lines Of C++ In ~2 Minutes With A 16 Core Ryzen 9 5950x

- Embarcadero
 - Reddit

I love how a shitty, bug-ridden development environment that costs US\$1359 for the most basic edition still requires you to buy a separate US\$139 extension to enable parallel builds, a standard feature available on practically every other closed and open source compiler and build system out of the box for \$0 extra.

Dev-C++

A fast, portable, simple, and free C/C++ IDE for Windows, built in Delphi

- GitHub

Using `std::list::splice` to implement a LRU cache

- [Article on nextptr](#)
- `std::list::splice`

What should the state of a moved-from object be?

- Raymond Chen
 - Reddit

Reducing Memory Consumption in Visual Assist

- Blog post
 - Reddit

dont_deduce

- artificial::mind
 - Reddit

C++11

```
1 template <class T> struct foo_t { using type = T; };
2 template <class T> using foo = typename foo_t<T>::type;
```

C++20

```
1 template <typename T>
2 auto operator+(
3     vec3<T> const& a,
4     std::convertible_to<T> auto const& b
5 ) -> vec3<T>;
```

Writing a custom iterator in modern C++ (C++17)

- Article
 - Reddit

C++ for Swift developers

- Sidharth Juyal
 - [Reddit](#)

Wrapping C++ for use in Swift

- [Reddit](#)

Is Zero a Butterfly?

- Shafik Yaghmour
 - Reddit

std::optional and other useful types

- **Reddit**

EnTT 3.6.0

Gaming meets modern C++ - a fast and reliable entity component system (ECS) and much more.

- [Announcement on Reddit](#)
 - [GitHub](#) (C++17, MIT)

With `std::variant`, you choose either performance or sanity

- Reddit

MSVC build performance

- Improving code generation time with C++ Build Insights
- Faster C++ builds, simplified: a new metric for time
- The Coalition Sees 27.9X Iteration Build Improvement with Visual Studio 2019
- Faster C++ Iteration Builds
 - Reddit
- C++ Build Analyzer
 - C++ Build Insights SDK

Infix Function Calls with Boost HOF

- Jo Boccara
 - Reddit

Before

```
1 | const bool b = isPrefixOf(prefix, text);
```

After

```
1 | const bool b = prefix <isPrefixOf> text;
```

Polymorphism Decision Table

- Kilian Henneberger

Tracy Profiler

A real time, nanosecond resolution, remote telemetry, hybrid frame and sampling profiler for games and other applications.

Tracy supports profiling CPU (C, C++11, Lua), GPU (OpenGL, Vulkan, OpenCL, Direct3D 12), memory, locks, context switches, per-frame screenshots and more.

- [GitHub](#)

The most thoroughly commented linker script (probably)

- Stargirl
 - GitHub
 - Reddit

How can I write a C++ class that iterates over its base classes?

- Raymond Chen
 - Reddit

Template specialization and instantiation

- Xiang Fan, Microsoft
 - Reddit

C++ Performance Trap #1: Constant-size `std::vector`

- Scott Wolchok
 - [Reddit](#)
 - [Software optimization resources, by Agner](#)

C++ Performance Trap #2: Unnecessary std::function

- Scott Wolchok
 - Reddit

Inlining and Compiler Optimizations

- Scott Wolchok
 - Reddit

The perils of the accidental C++ conversion constructor

- Raymond Chen
 - Reddit

No one hates C++ more than the people who love C++. ➡

Making Win32 APIs More Accessible to More Languages

- Microsoft
 - C++/WinRT

C++ and game engines

- **Reddit**

Hey, i started out with c++ 3 months ago and really love it. I already have some experience in unity, but i d like to use c++. Is there any engine you would recommend me to try out? I know about Unreal Engine but i cant find any good tutorials for how to use c++ with unreal engine. Is there any other option or a tutorial series or anything you could recommend me?

Game developers, what compiler optimization setting do you use?

- [Reddit](#)

Adding elements to arrays and changing variables during compilation – imperative meta-metaprogramming in C++

- Dugi
 - Reddit

Anonymous types in C++

- Jan Bielak
 - [Reddit](#)

```
1 constexpr auto simplify(struct_(int numerator, denominator;) ratio) ->  
    decltype(ratio)  
2 {  
3     int gcd = std::gcd(ratio.numerator, ratio.denominator);  
4     return { ratio.numerator / gcd, ratio.denominator / gcd };  
5 }
```

Documenting C++ code

- Reddit
 - Doxygen, Sphinx + Breathe \Rightarrow {fmt}
 - Standardese
 - clang-doc
 - hdoc
 - Adobe Hyde

YAVE: Functional reactive visual programming language written in C++20

- [Reddit](#)
 - [GitHub](#) (C++20, LGPL)

Possibility of adding operators to handle nullptr easier (“??”, “?→”)

- [Reddit](#)

CMake and the Future of C++ Package Management

- Borislav Stanimirov
 - [Reddit](#)

Fixed math header only library with MIT licence

- [Reddit](#)
 - [GitHub](#) (C++17, MIT)

Coderrect Scanner

A fast static analysis tool for detecting race conditions in C++ code.
Supports pthreads, `std::thread`, OpenMP, and more.

- [Home Page](#)
 - [Reddit](#)

Purely academic purposes Compile-time Turing Machine in C++20

- GitHub
 - Reddit

X-Macros

- Arthur O'Dwyer
 - Reddit

Interesting technique, I hate it. ⇒

A C++20 container concepts library

This library aims to provide general purpose concepts that are not available in the C++20 concepts library, most notably container concepts.

- [GitHub](#)
 - [Reddit](#)

Motivating examples of coroutines

- Reddit
- Previously: Reddit

std::jthread and cooperative cancellation with stop token

- [Article on Nextptr](#)
 - [Reddit](#)

Time Travel Debugging for C/C++

- Article
 - Reddit

- J.F. Bastien



Carla Notarobot 🤖💻 @CarlaNotarobot

Boss: Where did you get this code?

Me: Stack Overflow

Boss: From the questions or the answers?

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