C++ Club UK Meeting 114

Gleb Dolgich

2020-10-15

September 2020 mailing

September 2020 mailing

Select papers

- P2216R0 `std::format` improvements
- P2218R0 More flexible `optional::value_or()`
- P2219R0 Executors Issues Needing Resolution

Bjarne Stroustrup on "dead bodies of type theorists"

Reddit

> *I can't produce a link off the top of my head, but I remember Bjarne Stroustrup saying (on a few occasions, in a talk or a panel) that "non-type template parameters were introduced in C++ over the dead bodies of some type theorists" (quote from memory). This surprises me since types depending on values is a fundamental concept in Martin-Löf type theory which is older than C++. Does anyone have any knowledge on what feedback Bjarne Stroustrup received from type theorists?*

Clang 11 released

- Release Notes
- Reddit

New C++ features in GCC 10

- Concepts
- Coroutines
- Unevaluated inline-assembly in `constexpr` functions
- Warning on deprecated comma expression in array subscript expressions
- Static structured bindings
- `constinit`
- Deprecated `volatile`
- Conversions to arrays of unknown bound
- `constexpr new` and `dynamic_cast`
- The `[[nodiscard]]` attribute now supports an optional argument
- CTAD extensions
- Parenthesized initialization of aggregates
- **Modules are not yet supported, aiming for GCC 11**

Do you enforce Core Guidelines and/or use the Guidelines Support Library (GSL)?

Reddit

- C++ Core Guidelines
- Microsoft GSL
- GSL-Lite
- How to use the Core Guidelines checker in Visual Studio
- Reddit comment on VS2019 checker usage
- Thoughts on applying static analysis to a large code base (Reddit)
  - Thread on `[]` vs. `at()`, started by STL himself

CppCon2020

- Videos
- Presentation materials (GitHub)

The Little Things: Speeding up C++ compilation

Article by Martin Hořeňovský

- Reddit
- HackerNews

Techniques

- Include less
- Forward declarations (*hmmm – GD*)
- Explicit outlining
- Hidden friends
- Link less
- Extern template
- **Modules** (*not mentioned... – GD*)

Tools

- Include What You Use (IWYU)
- Ninja
- LLD

std::list::sort() vs. std::sort()

Reddit

- Answer

Scott Meyers, Effective STL:

> *Item 44: Prefer member functions to algorithms with the same name.*

The Defold game engine code style

Article

Code style

- C-like C++
- No classes (*huh? – GD*)
- No exceptions
- No STL
    - Custom containers
- Data ownership tracking
- C++98

(*It's the end of 2020, by the way. – GD*)

Should I use C++ exceptions?

Reddit

C++17 Zero allocation Coroutine/[Resumable function] library

GitHub

This does not use C++20 coroutines. It is a managed state machine style coroutine library, a modern take on Duff's device.

Reddit

> *I do not buy any of these anti-coroutine arguments (maybe except for the fact that HALO can fail in some situations – but that is an engineering problem in the compiler).* ⇒

Later, same author on Reddit: C++20 coroutines, opinions? And yes, Rust gets mentioned.

A Buffers Library for C++20

Colby Pike

Unpopular opinion: It's ok to derive from STL types/classes

Reddit

6 Efficient Things You Can Do to Refactor a C++ Project

B. Filipek

1. Update the Compiler and Set Correct C++ Standard Conformance
2. Fix Code With Deprecated or Removed C++ Features
3. Start Adding Unit Tests
4. Decouple or Extract Classes
5. Extract Non-member Functions
6. Reduce the Global State

- GitHub
- Reddit

Why do all guides use #using namespace std if it's supposedly really bad practice?

Reddit

C/C++: 70x faster file embeds using string literals

Article

- GitHub
- Reddit

Why I like C++ attributes

Marius Bancila

C++ STL-Like Algorithm Libraries

Conor Hoekstra

Library: Libcu++ - the NVIDIA Standard Library

GitHub

- Reddit

Recursive lambdas in C++

Philip Trettner

id Tech – Game engines written in C++

Engines and games

- Reddit

Fabien Sanglard's game engine code reviews

- Quake
- Quake 2
- Quake 3
- Doom 3

See also

Doom Eternal study

Named Parameters in C++20

Peter Dimov

- Reddit

C++ in Visual Studio Code reaches version 1.0

Julia Reid

- Reddit

Book: C++ Best Practices by Jason Turner

LeanPub (min. $9.99)

C++ Talk Index

Website

- Reddit

vcpkg: Accelerate your team development environment with binary caching and manifests

Microsoft

- Reddit

Related
Why is it such an abysmal pain to use libraries in C++ compared to pretty much anything else?

The terrible **size_t**

Reddit

juCi++: a lightweight, cross-platform IDE

- GitLab
- Installation guide

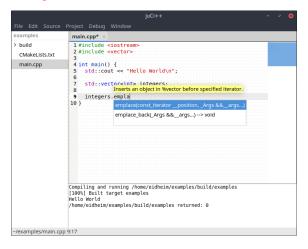

Figure 1: Screenshot

Library: cpp-lazy

Cpp-lazy is a fast and easy lazy evaluation library for C++14/17/20.

Lazy evaluation is an evaluation strategy which holds the evaluation of an expression until its value is needed. In this library, all the iterators are lazy evaluated.

This library is not a replacement for `ranges::v3` but rather a (smaller) alternative.

Library: Crypto3

- Home page
- Boost mailing list announcement
- GitHub
- Reddit

Library: AAA - Auxiliary Arithmetic Algorithms

- GitHub (MIT)
- Docs

C#-like events in C++

Reddit

(Unrelated: Variable name prefixes)

- Code on Pastebin
- Signal-Slot library benchmarks
- Boost.Signals2

Uses of immediately invoked function expressions (IIFE) in C++

- Erik Rigtorp
- Jonathan Müller

Overloading by Return Type in C++

Philip Trettner

- Reddit

```cpp
struct to_string_t
{
    std::string_view s;

    // int  from_string(std::string_view s);
    operator int() const;
    // bool from_string(std::string_view s);
    operator bool() const;
};

int i = to_string_t{"7"};
bool b = to_string_t{"true"};
```

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Stay at 127.0.0.1
Wear a 255.0.0.0

8:52 PM · Oct 2, 2020 · TweetDeck

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