

Welcome to C++ Edinburgh

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**TOSHIBA
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Agenda

- Intro and C++ Update
- Minimal RPC framework with modern C++ — *Rui Figueira, Cloudfine*
- Modern C++ Testing with Catch2 — *Phil Nash, JetBrains*
- Drinks at The Hanging Bat... maybe

Keep up-to-date

with C++ Edinburgh happenings.

<http://cppedinburgh.uk/>

<https://meetup.com/cppedinburgh>

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Congratulations to team "Evil std::vector<bool>"

for winning our very first C++ quiz.

C++ Quiz 12th June 2017 Team name: _____

round[1]

C++ edinburgh

1) void foo() {
 auto l = [](auto x) { x += x; };
 l(3);
 l(0.01577f);
}

A) C++11 B) C++14 C) C++17

2) template <typename T>
class foo {
 foo(T t) {}
};

int main() {
 int x = 50;
 foo f(x);
}

A) C++11 B) C++14 C) C++17

3) void func() {
 std::vector<std::string> v = {
 "xyxy",
 "plugh",
 "abracadabra"
 };
}

A) C++11 B) C++14 C) C++17

4) void func() {
 auto dur = 0ms;
}

A) C++11 B) C++14 C) C++17

5) void func(std::map<int, bool> m) {
 for (auto [key, value] : m) {
 std::cout << key << " = "
 << value << std::endl;
 }
}

A) C++11 B) C++14 C) C++17

6) template <typename T>
constexpr T pi = T(3.1415926f);

A) C++11 B) C++14

7) struct foo {
 if (status c = bw
 return c;
 } return baz();
}

A) C++11 B) C++17

8) void foo() {
 std::str
 baz(std);
}

A) C++11 B) C++17

C++ Quiz 12th June 2017 Team name: _____

round[2]

C++ edinburgh

1) template<class InputIt, class T, class BinaryOperation>
T foo(InputIt first, InputIt last, T init, BinaryOperation op)
{
 for (; first != last; ++first) {
 init = op(init, *first);
 }
 return init;
}

2) template <typename T>
typename remove_reference_t::lvalue&& foo(T&& arg)
{
 return static_cast<typename remove_reference_t::lvalue&&>(arg);
}

3) template<class InputIt, class OutputIt>
OutputIt foo(InputIt first, InputIt last, OutputIt d_first)
{
 while (first != last) {
 *d_first++ = *first++;
 }
 return d_first;
}

4) template<typename T, typename... Args>
std::unique_ptr<T> foo(Args&&... args)
{
 return std::unique_ptr<T>(new T(std::forward<Args>(args)...));
}

5) template<class InputIt, class OutputIt, class UnaryOperation>
OutputIt foo(InputIt first, InputIt last, OutputIt d_first,
 UnaryOperation unary_op)
{
 while (first != last) {
 *d_first++ = unary_op(*first++);
 }
 return d_first;
}

C++ Quiz 12th June 2017 Team name: _____

round[3]

C++ edinburgh

A) Gabriel Dos Reis
B) Scott Meyers
C) Herb Sutter
D) Stephen T. Lavavej

A) Michael Wong
B) Gabriel Dos Reis
C) Ericniebler
D) Chandler Carruth

A) Bjarne Stroustrup
B) Stephen T. Lavavej
C) Lawrence Crowl
D) Herb Sutter

A) Ville Voutilainen
B) Marshall Clow
C) Bjarne Stroustrup
D) Scott Meyers

A) Marshall Clow
B) Stephen T. Lavavej
C) Michael Wong
D) Gabriel Dos Reis

Want to do a talk?

Want to do a talk at C++ Edinburgh?

Doing something interesting with C++ and would like to tell us about it at C++ Edinburgh? We'd love to see anything C++-related, whether personal projects, things you've learnt recently, or work you've done for your occupation. You'll be contacted at a later date to see if you'd be up for speaking at a particular event and don't worry, you can always change your mind. For questions, please contact cppedinburgh@gmail.com.

***Required**

What is your full name? *

What is your email address? *
Are you located within or around Edinburgh? *

Yes
 No

Where do you work/study and what do you do?
(Optional)

goo.gl/forms/bhS0M2mtGN

Code of Conduct

- <http://cppedinburgh.uk/code-of-conduct.html>
- Exercise consideration and respect in your speech and actions.
- Refrain from demeaning, discriminatory, or harassing behavior and speech.
- Be mindful of your surroundings and of your fellow participants. Alert community leaders if you notice a dangerous situation, someone in distress, or violations of this Code of Conduct.

Mentorship programme

- Mentor/mentee commitment unclear
- Seeing more use for ad-hoc questions than a continued relationship
- We're going to make the programme more about advice channels than formal mentorship
 - Although a more structured relationship could come out of it

Workshops

- Planning a couple of workshops for this year
 - C++17 workshop
 - Applied Modern C++: Exploring the Standard Library
 - Preview of a class to be given at CppCon 2017
- More details and early signup coming soon
- Suggestions for venues welcome

C++ Update

August 2017

Simon Brand
tartanllama.xyz
@tartanllama

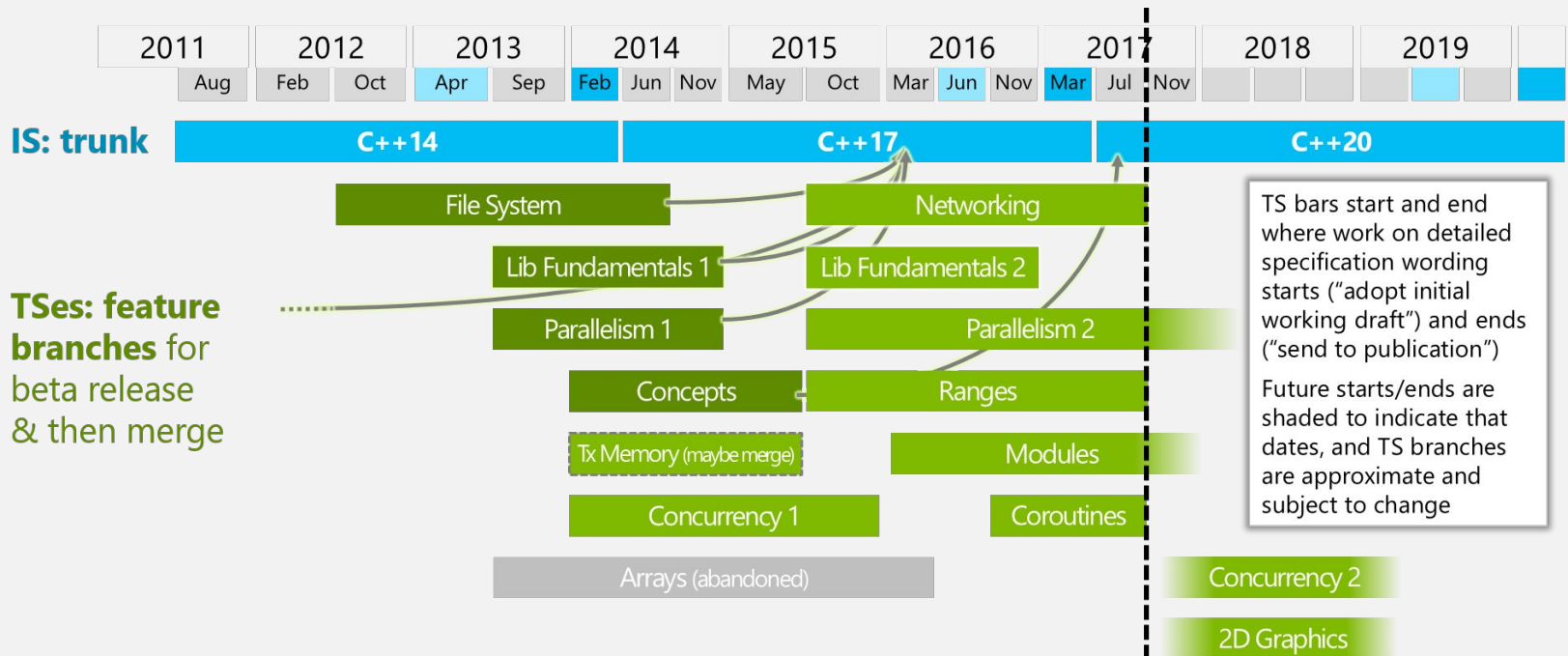
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Status of C++17

C++17 is now a DIS (Draft International Standard)



C++17 changes

- Way too many to list
- Since last time:
 - `std::byte`
 - Pack expansion in *using-declarations*
- P0636: Changes between C++14 and C++17 DIS
 - <http://open-std.org/JTC1/SC22/WG21/docs/papers/2017/p0636r1.html>

C++20 changes

- Concepts have been merged in!
- P0409R2: Allow lambda capture [=, this]
- P0329R0: Designated Initialization
 - `struct A { int x; int y; int z; };`
 - `A b{.x = 1, .z = 2};`
- P0428R2: Familiar template syntax for generic lambdas
 - `[]<typename T>(vector<T> v) { /*...*/ };`

Other news

- Boost moves to CMake
- Metaclasses proposal and ACCU talk released
- Beast accepted into Boost
- AMD released optimizing C and C++ compiler for Ryzen
- Cppast for programmatic access to C++ AST released

Announcements?
Questions?

Introductions