WG21 2021-10 Virtual Meeting
Record of Discussion
ISO/IEC JTC1 SC22 WG21 P2475 — 2021-10-18

Nina Dinka Ranns, dinka.ranns@gmail.com

Chair: John Spicer

Monday 2021-10-04
08:00 N.Am. Pacific Time

1. Opening activities

John Spicer opens the meeting at 08:03 AM N.Am. Pacific Time

1.1 Opening comments (PL22.16)

John Spicer presents.

1.2 Meeting guidelines

John Spicer presents.

Meetings are not public, but are open to visitors. Please refrain from live tweeting, blogging, taking photos or videos.

Every participant is responsible for understanding and abiding by the following:

    The INCITS Antitrust Guidelines (PL22.16)

    The INCITS Patent Policy (PL22.16)

    The ISO Code of Conduct

    The INCITS Code of Conduct (PL22.16)

    The IEC Code of Conduct

    The WG21 Practices and Procedures, and Code of Conduct

If you have any questions or concerns about CoC issues, please approach a committee officer or a NB representative and bring it to their attention. If you have any technical issues or concerns, please bring them up as soon as possible.

1.3 [The ISO Code of Conduct](#)

John Spicer presents CoC principles.

1.4 Membership, voting rights, and procedures for the meeting (PL22.16)

John Spicer presents voting rights.

If you are representing an organization that is considering formally joining PL22.16, or your organization is already a member and you wish to change your voting status, please inform an officer.

Hal Finkel presents. When registering for the call, please make sure you use the name that is registered in the global directory.

John Spicer presents how to vote using the telecon client.

If you are not an INCITS voting member, please do not move any of the PL22.16 motions.

1.5 Introductions

New members introduce themselves.
John Spicer welcomes new members.

1.6 Agenda review and approval (PL22.16 motion, WG21 poll)

John Spicer presents the agenda.

The meeting goals described above are derived from the schedule adopted in 2020 and described in: [P1000R4](#).

The primary goals of this meeting will be to provide any necessary status updates and conduct straw polls proposed for working draft changes.

PL22/16 motion to approve the meeting agenda
Bryce Adelstein Lelbach moves
Daveed Vandevoorde seconds.
The motion is unanimously approved by PL22/16.

WG21 motion to approve the meeting agenda.

The motion is unanimously approved by WG21.

1.7 Editor's reports, approval of working drafts

Document	Editor's report	Prospective WD
C++23 Standard	N4893	N4892

WG21 motion to approve the working drafts.
The motion is unanimously approved by WG21.

Herb Sutter : we also have a Concurrency TS we need to approve.
John Spicer : are there polls to change the working draft ?
Herb Sutter : there was a poll to create a working draft. We don't have polls to change it. We voted to create a working draft. We now need to approve the working draft. We can do it in February.
Jonathan Wakely : if it wasn't on the agenda, people can't have been made familiar with it. We should do it in February.

1.8 Approval of the minutes of the previous meetings (PL22.16 motion, WG21 poll)

Meeting	Minutes
WG21 February Virtual	N4891
PL22.16 February Virtual	pl22.16-2021-00011
WG21 pre-June Virtual administrative telecon	N4897

PL22/16 motion to approve the minutes.
Bryce Adelstein Lelbach moves.
Daveed Vandevoorde seconds.
The motion is unanimously approved by PL22/16.

WG21 motion to approve the minutes.
The motion is unanimously approved by WG21.

No discussion.

No discussion.

4. New business requiring action by the committee

No discussion.

5. Discussion and Straw Polls

WG and SG status and progress reports should be mailed to meeting@ no later than 7 days before the start of the meeting.

Plenary straw polls must be posted on the meeting wiki Straw Polls no later than 7 days before the start of the meeting.

Presentation and discussion of proposals to be considered for consensus adoption by full WG21.

5.1 CWG Polls

Jens Maurer presents.

There are changes for the straw polls since the admin meeting. We are excluding issue 1726 from the first motion because it needs additional work.

In the admin meeting we noted that there are reviews of two papers ongoing. The reviews are complete and are on the straw poll list - P2036 and P2314.

1. Accept as Defect Reports all issues except issue 1726 in P2462R0 (Core Language Working Group "ready" Issues for the October, 2021 meeting) and apply the proposed resolutions to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

[Editorial note : as stated above, that means issue 1726 is not accepted as a DR nor is its proposed resolution adopted at this time.]

2. Apply the changes in P2242R3 (Non-literal variables (and labels and gotos) in constexpr functions) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

3. Apply the changes in P0847R7 (Deducing this) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

4. Apply the changes in P2316R2 (Consistent character literal encoding) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

5. Apply the changes in P2334R1 (Add support for preprocessing directives elifdef and elifndef) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

6. Apply the changes in P2246R1 (Character encoding of diagnostic text) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

7. Apply the changes in P2360R0 (Extend init-statement to allow alias-declaration) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

8. Accept P2036R3 (Change scope of lambda trailing-return-type) as a Defect Report and apply the changes therein to the C++ working paper.

Jens Maurer: this is one of the motions that has been added after the admin telecon.

Herb Sutter : was this on the polls page one week before today ?

Hubert Tong : yes, it was.

No objection to unanimous consent.

Motion passes.

9. Apply the changes in P2128R6 (Multidimensional subscript operator) to the C++ working paper.

Ville Voutilainen : There are remaining concerns regarding C compatibility that haven't been resolved. That adds some uncertainty.

Nico Josuttis : was this issue discussed in EWG ?

JF: Yes, we discussed compatibility with C.

Ville : it's not about compatibility with the current C language, but with future versions of it. This should be a liaison activity, and it didn't happen for this paper. The answer to whether EWG discussed this is "no" as this is new information.

Herb Sutter : Compatibility considered by EWG is with current C, but not with future version of C.

Davis Herring : we have deprecated the comma operator. We assume WG14 is ok with that. They might introduce a meaning and it may not be the same meaning as the one we introduce, and we may want to coordinate that.

Herb Sutter : We've been liaising with the C committee during the lifetime of this committee. We now have a dedicated liaison group too. We have never considered being constrained by future C language evolution. I'm not objecting to it, only pointing out that it is not an existing practice. Maybe it should be.

There are objections in the room.

Herb Sutter reminds of the voting rules.

In favour : 44

Opposed : 2

Abstain : 19

There is consensus.

Motion passes.

10. Apply the changes in P2314R4 (Character sets and encodings) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

11. Direct the convener to request a New Work Item for a Technical Specification on "C++ Extensions for Minimal Transactional Memory" with P2066R10 (Suggested draft TS for C++ Extensions for Minimal Transactional Memory) as its initial content and Michael Wong as project editor and, if the New Work Item is approved, to publish the result for a DTS ballot.

Ville Voutilainen : can we have an explanation of this new procedure ?

Herb Sutter : We have done this before. There are two questions here. When are we ready to ask for a new project ? We do this when we have a working paper. The other question is when are we ready to send the working paper for the international ballot. These two things can happen at the same time, and then we have this situation.

If there is an objection to this motion, we can split the motion and have two polls.

Bryce Adelstein Lelbach : there is a comment in the chat I want to understand.

Bill Ash : JTC used to do things in parallel. They no longer do that anymore. They now do ballots in serial.

Herb Sutter : if we approve motion 11, Bill will run a new project ballot. If that ballot succeeds we will send the same document for a DTS ballot. This motion is asking for two ballots.

No objection to unanimous consent.

Motion passes.

5.2 LWG Polls

Jonathan Wakely presents. There were new items approved since the admin telecon. We have 39 issues and 18 motions. Everything has been on the poll page for over a week.

Issues
----
1. Apply the changes for all Tentatively Ready issues in P2450R0 (C++ Standard Library Issues to be moved in Virtual Plenary, Oct. 2021) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

C++20 and C++23
----
2. Apply the changes in P2372R3 (Fixing locale handling in chrono formatters) to the C++ working paper, as a Defect Report for C++20.

No discussion.

No objection to unanimous consent.

Motion passes.

3. Apply the changes in P2415R2 (What is a view?) to the C++ working paper, as a Defect Report for C++20.

No discussion.

Objections in the room.

In favour : 39

Opposed : 3

Abstain : 22

There is consensus.

Motion passes.

4. Apply the changes in P2418R2 (Add support for std::generator -like types to std::format) to the C++ working paper, as a Defect Report for C++20.

No discussion.

No objection to unanimous consent.

Motion passes.

5. Apply the changes in P2432R1 (fix istream_view) to the C++ working paper, as a Defect Report for C++20.

No discussion.

Objections in the room.

In favour : 32

Opposed : 1

Abstain : 28

There is consensus.

Motion passes.

C++23
----
6. Apply the changes in P0288R9 (move_only_function) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

7. Apply the changes in P0798R8 (Monadic operations for std::optional) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

8. Apply the changes in P0849R8 (auto(x): decay-copy in the language) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

9. Apply the changes in P1072R10 (basic_string::resize_default_init) to the C++ working paper.

No discussion.

Objections in the room.

In favour : 31

Opposed : 1

Abstain : 34

Peter Brett : title listed in the poll is different to the title of the paper.

Bryce Adelstein Lelbach : the naming was an issue, perhaps we should check whether it influenced the poll.

John Spicer : shall we do a poll with the correct name ?

Herb Sutter : yes, let's change the poll.

New poll : Apply the changes in P1072R10 (basic_string::resize_and_overwrite) to the C++ working paper.

Objections in the room.

In favour : 31

Opposed : 1

Abstain : 32

Herb Sutter : NB chairs, can you speak up if you have reservations about this poll.

Ville Voutilainen : We have reservations as we don't understand the objection to this poll.

Howard Hinnant : I don't believe this is the best API for the job. We discussed this issue, and there is no new information. The API that I think is better is the one that has been used in Boost for a decade.

Herb Sutter : was this issue discussed ?

Fabio Fracassi : yes. The other API has been opposed by NB comments.

Ville Voutilainen : that removes our concerns.

Herb Sutter : any other NB positions ?

No other NB positions.

There is consensus.

Motion passes.

10. Apply the changes in P1147R1 (Printing volatile Pointers) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

11. Apply the changes in P1272R4 (Byteswapping for fun&&nuf) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

12. Apply the changes in P1675R2 (rethrow_exception must be allowed to copy) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

13. Apply the changes in P2077R3 (Heterogeneous erasure overloads for associative containers) to the C++ working paper.

No discussion.

Objections in the room.

In favour : 35

Opposed : 0

Abstain : 26

There is consensus.

Motion passes.

14. Apply the changes in P2251R1 (Require span & basic_string_view to be Trivially Copyable) to the C++ working paper.

Nico Josuttis : was there a discussion to have this as a defect ?
Bryce Adelstein Lelbach : we didn't discuss it as such. It was pointed out that most of the major vendors already implement it as trivially copyable.
Jonathan Wakely : it doesn't make much difference. An implementation is not going to have it different in different standard modes. Old implementations can't change.
Bryce Adelstein Lelbach : if we want this as DR, please raise it in the mailing list and we can discuss it. I don't think we should hold this motion up.

No objection to unanimous consent.

Motion passes.

15. Apply the changes in P2301R1 (Add a pmr alias for std::stacktrace) to the C++ working paper.

No discussion.

Objections in the room.

In favour : 30

Opposed : 0

Abstain : 27

There is consensus.

Motion passes.

16. Apply the changes in P2321R2 (zip) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

17. Apply the changes in P2340R1 (Clarifying the status of the "C headers") to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

18. Apply the changes in P2393R1 (Cleaning up integer-class types) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

19. Apply the changes in P2401R0 (Add a conditional noexcept specification to std::exchange) to the C++ working paper.

No discussion.

No objection to unanimous consent.

Motion passes.

6. Closing activities

6.1 Other business

No discussion

6.2 PL2.16 motions, if any

PL22.16 business.

7 Plans for the future (PL22.16)

7.1 Next and following meetings

Herb Sutter presents.

2022-02-07: Winter Virtual
2022-07-25 to 30 New York, NY, USA (tentative)
2022-11-07 to 12: Kona, HI, USA: Standard C++ Foundation, Plum Hall, Jens Maurer

Herb Sutter : Meeting is tentative, dates are not. There will be a new information paper. We will also have a new information paper for the Kona meeting.

Tom Honermann : when is the admin telco for the February meeting ?
Herb Sutter : 2 weeks before the meeting.

7.2 Mailings

Note: These are the closest regular mailings and not special pre/post meeting mailings.

2021-10-15: Post-Autumn

2022-01-15: Pre-Winter

8. Adjournment (PL22.16 motion)

Bryce Adelstein Lelbach moves.
Daveed Vandevoorde seconds.
John Spicer adjourns the meeting at 09:38 AM N.Am. Pacific Time

9. Attendance

Name	Country	Organization
Aaron Ballman	USA	Intel Corporation
Alex Voicu	USA	AMD
Alisdair Meredith	USA	Bloomberg
Andreas Weis	Germany	
Antony Polukhin	Russia	
Barry Hedquist	USA	Perennial
Barry Revzin	USA	Jump Trading LLC
Bill Seymour	USA	Seymour
Billy Baker	USA	FlightSafety International
Bob Steagall	USA	KEWB Computing
Bronek Kozicki	United Kingdom	
Bryan St Amour	Canada	
Bryce Adelstein Lelbach	USA	NVidia Corporation
Michael Wong	Canada	

Christian Trott	USA	Sandia National Laboratories
Christof Meerwald	Austria	
Christopher Di Bella	United Kingdom	
Chuanqi Xu	China	
Colin MacLean	USA	Lawrence Berkeley National Laboratory
Corentin Jabot	France	
Damien Lebrun-Grandie	USA	Oak Ridge National Laboratory
Dan Raviv		
Daniela Engert		
Daveed Vandevoorde	USA	Edison Design Group
David Sankel	USA	Bloomberg
David Tenty	Canada	
David Vitek	USA	GrammaTech Inc
Davis Herring	USA	Los Alamos National Laboratory
Detlef Vollmann	Switzerland	
Dietmar Kühl	USA	Bloomberg
Dounia Khaldi	USA	Intel Corporation
Erich Keane	USA	Intel Corporation
Fabio Fracassi	Germany	
Florian Sattler		
Frank Birbacher	United Kingdom	
Gabriel Dos Reis	France	Microsoft Corporation
Gary Klimowicz	USA	Dancing Bear Software LLC
Gašper Ažman	United Kingdom	
Glen Fernandes	USA	The C Plus Plus Alliance Inc
Graham Lopez	USA	NVidia Corporation

Guy Davidson	United Kingdom	
Hal Finkel	USA	United States Dept of Energy
Hana Dusíková	Czech Republic	
Hans Boehm	USA	Google
Herb Sutter	USA	Microsoft Corporation
Howard Hinnant	USA	Ripple Labs
Hubert Tong	Canada	IBM Corporation
Inbal Levi	Israel	
Izzy Muerte		
Jayesh Badwaik		
Jean-Paul Rigault	France	
JeanHeyd Meneide	Netherlands	
Jens Maurer	USA	Edison Design Group
JF Bastien	Canada	
John Lakos	USA	Bloomberg
John Spicer	USA	Edison Design Group
Jonathan Wakely	United Kingdom	IBM Corporation
Joshua Berne		
Juan Alday	USA	GreenWireSoft
Kelly Walker	USA	Stellar Science
Larry Lewis	USA	SAS Institute Inc
Lars Gullik Bjønnes	USA	Cisco Systems Inc
Lee Howes	USA	Facebook
Louis Dionne	USA	Apple
Mark Hoemmen	USA	Stellar Science
Mark Zeren	USA	VMware Inc

Matthew Butler	USA	Laurel Lye
Matthias Kretz	Germany	
Matus Chochlik	Slovakia	
Michael Adams	Canada	
Michael Hava	Austria	
Michael Spencer	USA	Apple
Michał Dominiak	Poland	NVidia Corporation
Mingxin Wang		
Nathan Sidwell	United Kingdom	
Nemanja Boric	USA	Amazon Corporate LLC
Nevin Liber	USA	Argonne National Laboratory
Nicolai Josuttis	Germany	
Nina Ranns	United Kingdom	Edison Design Group
Pablo Halpern	USA	Halpern-Wight Inc
Patrice Roy	Canada	
Peter Brett	United Kingdom	
Peter Kulczycki	Austria	
Phil Nash	United Kingdom	
Phil Ratzloff	USA	SAS Institute Inc
René Ferdinand Rivera Morell		
Richard Corden	USA	Programming Research Ltd
Rob Douglas	Aquatic Group LLC	
Robert Leahy	Canada	
Robert Simpson	USA	Qualcomm Inc
Roger Orr	United Kingdom	
Ruslan Arutyunyan	USA	Intel Corporation

Ryan McDougall		
Bill Ash	USA	INCITS Secretariat
Scott Schurr	USA	Ripple Labs
Sebastian Büttner		
Steve Downey		
Thomas Köppe	USA	Google
Tim Song	USA	Jump Trading LLC
Timur Doumler	United Kingdom	
Tom Honermann	USA	Synopsys Inc
Tom Scogland	USA	Lawrence Livermore National Laboratory
Tomasz Kamiński		
Victor Zverovich		
Ville Voutilainen	Finland	The Qt Company
Walter E Brown	USA	Brown
Wesley Maness	USA	Schonfeld Tools LLC
Wyatt Childers	USA	Edison Design Group