WG21 2021-09 Admin telecon minutes

ISO/IEC JTC1 SC22 WG21 N4897 — 2021-09-20

Nina Dinka Ranns, dinka.ranns@gmail.com

Convener: Herb Sutter
SC22/WG21 pre-meeting telecon
Monday 2021-09-20
08:00 N.Am. Pacific Time

1 Opening and introductions

Herb Sutter opens the meeting at 08:05 N.Am. Pacific Time

1.1 Roll call of participants

Aaron Ballman
Barry Hedquist
Ben Craig
Billy Baker
Bryce Adelstein Lelbach
Casey Carter
Christof Meerwald
Daveed Vandevoorde
Detlef Vollmann
Erich Keane
Fabio Fracassi
Gabriel Dos Reis
Hal Finkel
Hans Boehm
Herb Sutter
Hubert Tong
Inbal Levi
Jeff Garland
Jeff Snyder
Jens Maurer
JF Bastien
John Spicer
Jonathan Wakely
Matthias Kretz
Michael Hava
Michael Wong
Nevin Liber
Nina Ranns
Olivier Giroux
Peter Brett
Peter Kulczycki
Roger Orr
Ryan McDougall

Thomas Köppe
Tom Honermann
Ville Voutilainen
William Miller

1.2 Adopt agenda

Herb Sutter adds review of CoC to the agenda.

No objection to approval of agenda with the new item. Agenda adopted.

1.2.5 Review of Code of Conduct

See *SD-4 > Code of conduct,* which includes links to ISO CoC, IEC CoC, and other re-
sources)

1.3 Approve minutes from previous meeting (deferred to face- to-face meeting)

1.4 Review action items from previous meeting (deferred to face-to-face meeting)

1.5 Review of project editor and liaison assignments

> *Status page*

Herb Sutter presents. Concurrency TS2 coming up, which approved in the last virtual ple-
nary. We're in process of getting a new work item. We are likely to have a draft of it in bal-
lot in 2 weeks' time. We have a new project editor, Michael Wong.

2. Status reports

2.0 Advisory subgroup status reports

• **AG**, Admin group: Hal Finkel

Hal Finkel presents. We have not met recently. Some updates and further progress on Mat-
termost we have an agreement with our webmaster James Riordon to continue develop-
ment of the paper handling system an make it in even more automated state.

Tom Honermann : I did not have time to work on evaluation of Mattermost. There are todo
items on the wiki. If anyone wants to help out it will be appreciated.
JF Bastien : What is Mattermost ?
Herb Sutter : it's a chat server that we're looking at.
JF Bastien : how do we try it out ?
Hal Finkel : the information is on the wiki.

Herb Sutter : can we reduce the number of different logins in the subdomains of isocpp.org
?
Hal Finkel : I agree. We can discuss this more with James Riordon to see what can be done
in what time frame.

Tom Honermann : we have no issues so far using Mattermost. If you have any other information, we would love to hear it.

Herb Sutter : please raise issues onto the admin list so we can discus it there.

Bryce Adelstein Lelbach : Mattermost is useful, but I'm not going to check every email and chat client. If someone mentions me on there, I will check it. If there are any discussion where someone's attention is needed, please do tag them so we can be notified of it.

- **DG**, Direction group: Daveed Vandevoorde

The direction group has continued to have its biweekly meetings discussion topics that might impact the overall direction of C++'s evolution (a few of the meetings did not have quorum). We intend to update P2000 accordingly, before year's end.

Tom Honnerman : can you elaborate on some of the topics ?
Daveed Vandevoorde : we have a mix of topics. We look at the reflector to see if we need to give input. Most of the time we think it's not a global direction. We also discuss topics we find outside of the committee and if we should do something them.

Herb Sutter : who is the next chair ?
Daveed Vandevoorde : Roger Orr.

- **ARG**, ABI review group: Daveed Vandevoorde, Jason Merrill

We do not get many questions, but the question we did get we answered adequately, I think. (ARG doesn't have pro-active meetings, but is just available to answer specific ABI-related questions.)

Ville Voutilainen : we did have an ARG question about changing the overload sets of ref-qualified functions.

- **SSRG**, Safety/security review group: Ryan McDougall

SSRG (Safety and Security Review Group) did not get many questions, but we did have a lively discussion on P1494 (Partial program correctness by Davis Herring) which has since been forwarded to SG1 and is awaiting EWG: https://github.com/cplusplus/papers/issues/376

Bryce Adelstein Lelbach : it's very likely that LEWG will be asking SSRG to comment on security questions related to the networking TS.

2.1 Pipeline stage 1 groups: Specialist subgroup status reports (Sgs)

SGs 3, 8, and 11 are currently dormant and handled in the main subgroups. The active SGs are:

- **SG1**, Concurrency: Olivier Giroux, Hans Boehm

Aside from SG1-related activity happening in LEWG, SG1 continues to be dormant, met only once since the last telecon and has not taken any new polls.

- **SG2**, Modules: David Stone

No recent activity.

- **SG4**, Networking: Jeff Snyder

SG4 has met once since the last plenary and approved one paper. We currently have no active papers, but will resume fortnightly telecons as and when we have papers to discuss.

- **SG5**, Transactional memory: Hans Boehm, Jens Maurer

We have continued to work on the "TM-lite" transactional memory TS. It has now been approved by SG5, SG1, EWG, CWG, and LWG. LEWG declined to formally review it, but has been in the loop. (The library component is minimal, and certainly not direction-setting.) We hope to vote it out for PDTS ballot at this meeting.

Hans Boehm : there may be two ballots in the next meeting.

Herb Sutter : it will be a new work item ballot and a DTS ballot. We sometimes do concurrent ballots and then put them together. We can approve them both in 2 weeks, and SC22 will take the same document and ballot it two ways.

- **SG6**, Numerics: Lisa Lippincott, Matthias Kretz, John McFarlane

Matthias Kretz reports : I have not been in contact with Lisa yet. SG22 had meeting for floating point in C and I'm trying to follow up on that to see if we need to do anything about that.

Herb : If a chair is not available, an assistant chair can chair a meeting where there is a quorum. Thank you to all the chairs and assistant chairs during these times.

- **SG7**, Compile-time programming: Hana Dusíková, Daveed Vandevoorde

SG7 didn't receive any paper this summer hence no progress on reflection.

- **SG9**, Ranges : Inbal Levi, Casey Carter

SG9 have been meeting once a month since reactivated and reviewed and forwarded to LEWG ranges papers and important C++20 Ranges-related DRs:P1206, P2415, P2418, P2432, where all forwarded to LEWG, P2276, P2286, P2374, P1664 are still on the pipe and expected to reach conclusions shortly. Full history is here: https://github.com/cplusplus/SG9/blob/main/2021-Telecons.md

Thanks to extensive work by our group's members, we expect to have (at least) all the Tier 1 facilities from P2214R0 in C++23

- **SG10**, Feature test: Barry Revzin, Jonathan Wakely

SG10 has nothing to report. People have been doing really well on reminding paper authors to add (or comment about not adding) feature-test macros.

- **SG12**, Undefined and unspecified behavior, and vulnerabilities: Gabriel Dos

Reis, Aaron Ballman, Michael Wong

SG12 met once to review

> P2234R1: Consider a UB and IF-NDR Audit

> P2215R1: "Undefined behavior" and the concurrency model

SG12 unanimously encouraged P2234's author to continue work in that direction.

SG12's feedback to the authors of P2215 is that the basic facts are correct.

SG12 plans to meet again to review revisions of existing papers and newly submitted papers.

Ville : C committee has formed an undefined behavior study group.

Gaby Dos Reis : I didn't get an official notification fro the liaison chair yet. When something comes up for us to looking at, will do so.

Aaron Ballman : I've been to the inaugural meeting and there's nothing to coordinate yet.

Ville : please establish early and continuous communications with this group.

Aaron Ballman : any C implementors who care about optimizations might want to join these meetings.

Gaby Dos Reis : we need to communicate early on so we don't get forced to pick things up due to compatibility.

Hubert Tong : There is a chance of correction when it goes to the main committee. If the group doesn't have a balance of experts, perhaps it should be decided that the SG doesn't have a quorum.

Aaron Ballman : I will bring this up.

• **SG13**, HMI and I/O: Roger Orr

Nothing to report, we continue to have no papers targeting SG13.

• **SG14**, Low latency: Michael Wong

We continue monthly meetings on the 2nd Wednesday with each month focusing on one topic of Embedded, Games, and Finance/Low Latency. The next call will be Oct 13, 2021 02:00 PM ET/1800 UTC: Embedded

• **SG15**, Tooling: Michael Spencer, Ben Boeckel

No report.

• **SG16**, Unicode: Tom Honermann, Peter Brett

SG16 (Unicode and text processing) has continued to meet twice monthly. Proposals and issues that we have been focused on include the following :

P2093: Formatted output

P2295: Support for UTF-8 as a portable source file encoding

P2348: Whitespaces Wording Revamp

P2362: Make obfuscating wide character literals ill-formed

P2419: Clarify handling of encodings in localized formatting of chrono types

LWG 3565: Handling of encodings in localized formatting of chrono types is underspecified

LWG 3576: Clarifying fill character in std::format

We've been focusing our efforts more on library concerns in recent times. That will hopefully remain the case for the near and medium term, though there are still some core language concerns we'll no doubt have to devote time to.

Many thanks to Peter Brett for admirably running SG16 the last six weeks or so while I've been consumed with personal/family matters.

- **SG17**, EWG incubator: Botond Ballo, Erich Keane

No report. See EWG.

- **SG18**, LEWG incubator: Billy Baker, Nevin Liber

No report. See LEWG.

- **SG19**, Machine learning: Michael Wong, Vincent Reverdy

We continue monthly meetings on the 2nd Thursday with each month focusing on one topic of Graph, Calculus, and Stats. The next call will be Oct 14, 2021 02:00 PM ET 1800 UTC Differential calculus/Reinforcement Learning

- **SG20**, Education: JC van Winkel

SG20 (education) has been meeting about every 6 weeks. We are working on education guidelines. Since the previous WG21 meeting we have a new format for our document which has better structure and makes it more accessible and (hopefully) easier for people to contribute. Work is done offline on github, and we invite people to take a look at our document and pick a subject they would like to contribute. See https://mdadams.github.io/sg20_guidelines_for_teaching_cpp/latest/#contributing-to-this-document

- **SG21**, Contracts: John Spicer, Ryan McDougall

We have had two telecons to discuss the minimal viable product for contracts.. At the most recent, on July 20, we polled this question: SG21 would like to continue work on P2388R0 as the contract support for C++23 and proceed to develop wording

SF F N A SA

8 4 2 0 0

We have a follow-on telecon scheduled for October 5 to discuss open issues and start reviewing wording.

John Spicer : Very pleased with the direction we're going in. There is strong consensus behind the proposal we're pursuing. We're trying to make sure that what we do doesn't close any doors to any future expansion down the line. We want to have basics now and avoid things that are contentious and that might constrain us in the future

• **SG22**, C/C++ liaison: Aaron Ballman, Thomas Koeppe, JeanHeyd Meneide, Richard Smith

SG22 continues to meet on a monthly cadence and processes about three papers a month. We're continuing to focus on papers that have already been accepted for C++23 or C23 but may have compatibility impacts.

There are some recent concerns over the additional floating-point facilities in C23 and the P1467 proposal for C++, so I'm coordinating a meeting between the interested parties in both committees to see what can be done to mitigate those concerns.

WG14 Liaison Report

WG14 has had two plenary meetings since the last WG21 plenary meeting. The larger new changes to C coming out of those meetings were the adoption of the following proposals:

N2683 Towards Integer Safety (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2683.pdf) – adds overflow-checked integer operations (the core proposal was adopted, but not the supplementary proposal).

N2763 Adding a Fundamental Type for N-bit integers (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2763.pdf) -- adds a new fundamental N-bit integer data type that does not participate in usual integer promotion rules (expected to be proposed for C++, but not in the C++23 timeframe).

N2662 maybe_unused attribute for labels (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2662.pdf) – allows [[maybe_unused]] on a label; WG21 may want to pick up a similar feature.

N2654 Revise spelling of keywords (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2654.pdf) – introduces first-class keyword spellings for keywords previously spelled only with a reserved name (everything but "Question 4" was adopted), uses same spellings as the keywords that exist in C++.

N2686 #warning (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2686.pdf) -- adds the #warning directive to the preprocessor (P2437R0 will be in the Sept mailing for the WG21 proposal for this).

N2799 __has_include for C (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2799.pdf) – adds the __has_include preprocessor expression for compatibility with C++.

N2801 Wording for Sized Memory Deallocation (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2801.htm) – adds deallocation functions that accept size information of the memory to be deallocated (adopted wording candidate 2).

N2728 char16_t & char32_t string literals shall be UTF-16 & UTF-32 (http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2728.htm) – nails down the text encoding for char16_t and char32_t string literals.

Our next meeting will be held (virtually) the week of Nov 15. WG14 decided to cancel our face to face meeting in Portland in Feb 2022, but will meet virtually that week (we're expecting to add another virtual meeting to cover the lost time as our virtual meetings are half days). We're still on track for shipping C23 on time, our current schedule can be found at: http://www.open-std.org/jtc1/sc22/wg14/www/docs/n2759.pdf

Aaron Ballman : WG14 has had a couple of plenary meetings and is making progress on C23. C++ compatibility seems to be the primary focus in WG14 at the moment.

Ville Voutilainen : what is the history of the earlier attempts of combining the two committees. I'd like to hear more about that.
Herb Sutter : when WG21 was initially created it was explicitly request that C++ didn't come under the C committee. Over time, there have been occasional suggestions to merge the two committees, but they didn't succeed.
I don't plan to do anything unless there is a proposal.

Jens Maurer : I would like to highlight the floating point study group is adding a large quantity of things, including new types. The timing is unfortunate.

JF Bastien: should we have a joint meeting to synchronize ?

Jens Maurer : someone should go over the material from C++ side and see what needs to be discussed.

JF Bastien : do we have a volunteer ?

Matthias Kretz : I have been doing some of that.

JF Bastien : Language side is what worries me. I think we want something faster than SG6

Aaron Ballman : I'm trying to coordinate with C floating point SG to see when they have time to dedicate to this. Please send me any other topic you want to discuss. They are willingly to react. C23 is wrapping up rapidly, but they have been very reactive.

JF Bastien : If you need to use EWG timeslots, please do so. Let's try and include C++ extended floating point paper (P1467) authors.

Herb Sutter : please raise all technical issues on the mailing list.

2.2 Pipeline stage 2 groups: Design subgroup status reports

• **EWG**, Core evolution: JF Bastien, David Stone, Erich Keane

EWG has published a report. Please see P1018R8.

We are getting good number of votes in the polls. We want to talk how to have an unofficial process. The discussion was controversial.

If you think something needs to be in C++23, please let me know. Please cc Erich Keane.

Herb Sutter : the cut off is the first week of February for EWG to approve design to send to CWG.

• **LEWG**, Library evolution: Bryce Adelstein Lelbach, Fabio Fracassi, Ben Craig

The full LEWG report will be available in P2400R2, probably sometime next week. Until then:

Deadline for C++23 work to leave LEWG is end of 2021.

We have a telecon agenda for the rest of the year coming together.

We're planning to add some telecons in October to increase our bandwidth. I'm considering doing these as a longer meeting or one or two days.

We're also attempting to advance non-controversial and smaller proposals directly from mailing list review to electronic polls.

We just completed our 2021 Summer polling period, and started a special September electronic polling period.

I expect to do one electronic polling period a month through January 2022, which will keep the number of items in each polling period smaller and allow us to get results sooner.

Major things we're working on:

> Senders/receivers (maybe)

> Networking (maybe)

Major work that I think is likely to get into C++23:

> Ranges

> Formatting

> mdspan

> std::generator

2.3 Pipeline stage 3 groups: Wording subgroup status reports

• **CWG**, Core wording: Mike Miller, Jens Maurer

CWG has held four teleconferences since the June plenary and will hold another this week in order to complete some reviews before the deadline for poll/paper submissions next Monday.

We have reviewed all papers approved by EWG during this cycle, completing the review of nine, with revisions of two still in process for review this week. Of the nine, one (P0849) - "auto(x) - decay-copy in the language") has been forwarded to LWG for inclusion in their polls; one (P2066 - "Suggested draft TS for C++ Extensions for Minimal Transactional Memory") will be polled by CWG once LWG has approved the wording changes in the library clauses; and the remaining seven will be polled by CWG in the October plenary. We think that the other two still pending review (P2036 - "Change scope of lambda trailing-return-type", and P2314 - "Character sets and encodings") are in good shape and likely to be included in the October CWG polls as well.

In addition, we have approved and will poll proposed resolutions for six issues and have reviewed 21 new issues since the June plenary.

Mike Miller: P2066 was considered and approved by LWG so will be on the list of polls.

Jens Maurer: we need a project editor for P2066.

Herb Sutter : we'll find someone.

• **LWG**, Library wording: Jonathan Wakely, Jeff Garland, Dietmar Kuehl

LWG has continued to meet nearly every week.

We're making great progress through our queue. Although there are still many papers tagged "LWG" in the paper tracker, most of them are waiting for author feedback and not blocked by LWG.

We have 33 issues in Tentatively Ready status that we will vote on, and 13 proposals for C++23 (one of which is a defect report for C++20). Those will all be on the Straw Polls page tomorrow.

We have lots more papers in our pipeline to keep us busy. Some that we've already seen once and some that are new from LEWG (or forwarded to use a long time ago, but not reviewed until now).

Bryce Adelstein Lelbach : LEWG is currently polling 3 papers. Will we be able move them at the plenary ?

Jonathan Wakely : We need one week notice. If library approves them, and LEWG is done polling them more than one week in advance we can schedule them for polling.

Herb Sutter : we also have February virtual plenary.

Hubert Tong: CWG is advancing P2314, which has small amount of library wording.

Jonathan Wakely : LWG approved it last week.

2.4 SC22 report

Herb Sutter : We have started ballot for the new item for concurrency TS2. We should have concurrency TS2 before the end of the year.
Any document that contains the word should be considered as specification. Tooling TR will become Tooling TS, but it doesn't affect our work.

Michael Wong : there was a vote to withdraw concurrency TS and the poll was split. That was surprising. I stepped in said we should withdraw it.

Herb Sutter : we generally don't keep TS open once they are merged. NBs were not informed. Withdrawn doesn't meen it doesn't exist; it's no longer viable through iso store.

3. New business

3.1 Review of priorities and target dates

• Status page
• P1000

3.2 Any other business

Herb Sutter : we will not be meeting f2f in Feburary.

4.1 Review and approve resolutions and issues

No discussion

4.2 Review action items

5. Closing process

5.1 Establish next agenda

Herb : I propose the same agenda modified as suggested. Any objections ?

No objections.

5.2 Future meetings (deferred to full meeting)
5.3 Future mailings (deferred to full meeting)

5.4 Adjourn

Meeting adjourned at 11:13 N. Am.