

Doc No: SC22/WG21/N3621  
Date: 2013-03-29  
Project: JTC1.22.32  
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# Minutes, WG21 Teleconference 2013-03-29

## 1. Opening and introductions

Sutter calls the meeting to order at 2013-03-29 at 15:06 UTC.

### 1.1 Roll call of participants

The following persons are in attendance:

name	country
Alisdair Meredith	USA
Barry Hedquist	USA HoD
Bjarne Stroustrup	USA
Clark Nelson	USA
Daniel Garcia	Spain HoD
Detlef Vollmann	Switzerland HoD
Gabriel Dos Reis	USA
Hans Boehm	USA
Herb Sutter	USA/Canada/Convener
Kyle Kloepper	USA
Lawrence Crowl	USA
Faisal Vali	USA
Michael Wong	Canada HoD
P.J. Plauger	USA
Tana Plauger	USA
Roger Orr	UK HoD
Stephen Clamage	USA
Thomas Plum	USA
Ville Voutilainen	Finland HoD
William Miller	USA

Statements recorded in these minutes made by members of the US delegation do not represent a US National Body position unless specifically identified as such.

## **1.2 Adopt agenda**

Sutter asks for objections to adopting the agenda [N3321](#) for this meeting. With no objections [N3321](#) is adopted as the agenda for this meeting by unanimous consent.

## **1.3 Approve minutes from previous meeting**

Sutter asks for objections to approving minutes from WG21 teleconference 2012-10-05 ([N3453](#)). Kloepfer says he received a couple of change requests for the minutes that he is still applying. Sutter asks if there are any objections to approving the minutes as amended. With no objections [N3453](#) is approved by unanimous consent.

## **1.4 Review action items from previous meeting**

The single action item to take a poll if reflectors should be public was completed in Portland.

## **1.5 Review of project editor and liaison assignments**

Sutter states there are no changes to project editor or liaisons.

Sutter relays a note from John Benito from WG23 that WG21 has not furnished them a language specific annex. Crowl asks what WG23 is looking for in such an annex. Sutter give the example of [ISO/IEC TR 24772:2013](#) and asks the group if there is interest in forming a liaison to WG23. No response.

# **2. Status, liaison and action item reports**

## **2.1 Small group status reports**

### **Core Working Group**

Miller confirms that the new issue rate is dropping. There are 82 new issues pre-Bristol. Have 56 issues in ready status. Expected to be moved and approved in Bristol. 16 more dealt with during conference calls. 72 issue resolutions moving at Bristol unless there are problems or objections. CWG is close to keeping with run rate of new issues.

Five papers ready for core to review. Four need another pass through evolution. Have been posted to Bristol Wiki.

CWG had two productive conference calls, one in December, and the other in February. The March teleconference was less well attended. With fewer participants Miller did not feel comfortable moving anything to tentatively ready status.

Sutter clarifies that with the 72 shipping we will be only 10 behind. Miller confirms this and adds that some of the open issues may turn out to be NAD. If the run rate drops as expected CWG will be keeping pace.

Sutter asks the total number of open issues. Miller reports 70 issues in drafting status just waiting for wording. CWG triages issues in priority order. Trivial changes, such as incorrect examples, are given priority 0. Critical issues are given priority 1. Two other priorities are used as well. Four issues not yet assigned for drafting.

Meredith asks if core is in a good place to vote out C++14 in Bristol. Miller confirms that CWG is ready for a CD. Holes in C++11 have been plugged. CWG is in a better place than FDIS for C++11.

## **Library Working Group**

Meredith reports there will be a high volume of papers in Bristol. He thanks Sutter for suggesting forming LEWG to help take load off LWG. There are 20 issues in ready status, 25 in review, 50 in new status, and 50 in open status. More issues than can be coped with, but nothing that is a stop ship.

Sutter asks if LWG assigns priorities similar to CWG. Meredith reports that LWG does not. Sutter suggests that doing so may help and that prioritizing the list takes less time than expected. Could get through the list in an hour or two. Crowl suggests producing a candidate list ahead of time. Meredith states he would like the groups input to form such a list and that there is such a volume of work in Bristol that an hour or two cannot be spared. Stroustrup comments that starting with a suggested order can save wasting a couple of hours. Sutter agrees and adds that anyone is free to discuss the ordering with Meredith.

## **Library Evolution Working Group**

Meredith reporting as Dawes is not on the call. There is a 50/50 split in papers between LWG and LEWG. Each has about 20 with the assumption that Study Groups

will be processing their own papers. SG1 has about 20 papers. Other groups have fewer. Meredith states the need for a clearer dividing line between LWG and LEWG. Stroustrup says not to agonize too much about dividing line. Look at special cases and the dividing line will resolve itself.

## **Evolution Working Group**

Stroustrup reports the plan in Bristol is to focus on things that will get into C++14, or something that will get into TR that releases C++14. List of issues made by Ville. Is not ready yet. Currently focusing on concept light. SG8 meeting had good consensus.

Voutilainen presents statistics: 47 issues and papers to process, not counting post-Portland and pre-Bristol. Expects papers and issues to double. Stroustrup says that is natural and obvious. EWG's job is to stop that from taking up all the time. Voutilainen and Stroustrup will sync up to have priority list ready before Bristol

Sutter asks if there are other questions. No response.

## **Study Groups**

SG1 – Boehm reports there are 18 papers and 2-4 library extensions to advance if possible.

SG2 – Sutter reports (as Doug Gregor is not on call) there has been much personal progress from Gregor and Daveed Vandevoorde. There has been no mailing or teleconference. Expects to meet in Bristol. Contact Gregor to find out more.

SG3 – Meredith reports (as Beman Dawes is not on call) New work item for TS to have equivalent for CD after Bristol. Would like to appoint editor for working draft. Did not move document at last meeting.

Stroustrup states that in Portland the objection from Google was that there are problems with security model and design is unsafe. Meredith explains that POSIX has added APIs to avoid man in middle attack, but that new API is not in wide spread use. While SG3 would be in favor of that, it is not sure that API would work on windows. Nothing from Google came out at this meeting. Would like to pursue standard that we have, and integrate Google feedback when it comes. Stroustrup would like reassurance that this is a step in right direction and not something to undo or deprecate later. Sutter says that since this is a TS it is not normative which will help implementations not to diverge. Does not have to be deprecated, as it is not normative. Is not implementable so that should not prevent TS moving forward.

Sutter says there are two options: Can have two TS in same space that overlap, can both be used for standardization. Other option is to have successive TS. When more feedback comes along it can be integrated. The feedback in Portland should not derail or delay.

Meredith would like more eyes on right document. Sutter directs group to JTC1 procedures (<http://isocpp.org/std/iso-iec-jtc1-procedures>) list stages for TS. PDTS ballot (CD major comments) and DTS (final ballot) and asks if Meredith wants more eyes to have more bake time, or is it just that he wants to put it in LaTeX format. Meredith says PDF will bring more eyes. Sutter says where you get the most eyes is when you post a PDTS. Just an N numbered paper will not get any more eyes. Meredith would like a formal motion on Saturday to appoint an editor to convert it to PDTS. Sutter asks if the vote should be to vote this to be a working draft for a TS. LWG and EWG never came to committee to present that as TS. Goal is to vote out a PDTS in Chicago. Put out a DTS out in Rapperswil and squeak out TS before Christmas 2014.

Stroustrup reiterates he wants some assurance that this is a step in the right direction. Don't want to block moves for better security and APIs. Want a single paragraph summarized. Crowl is uncomfortable with releasing something with known security vulnerabilities. Document should be clear about that. Stroustrup says document should be clear that it is an improvement to status quo and a step in right direction. Meredith asks if work should be held up, as the POSIX change is major. Stroustrup says to write explanation down so group knows what to vote on. Crowl adds that the explanation should be in the document. It is not go/no go choice. It is a what-do-we-go-with choice. Concern is that a document is released without any mention of security issues and is deployed without thought, as it is ISO approved. Stroustrup is happy with document that acknowledges issues.

Meredith asks for feedback to pass along to Dawes. Stroustrup says to specify domain for which the proposal is appropriate. Sutter says that status quo is everyone uses boost Filesystem and incompatible versions of that. The current proposal would solve the problem of diverging implementations. Should answer if this is on the path from here to better. Stroustrup says that everything we do in incremental and transient. When thinking in terms of decades everything will need to be redone. The group cannot think in terms of perfection.

Sutter asks if Meredith has what he needs. Kloepfer asks if there is someone in mind for the project editor role. Meredith says Dawes is named as editor and Du Toit is

backup. Sutter says NP ballot names Dawes as editor and that ISO wants backups for all editors.

SG4 – Kloepfer reports there are three papers with one and possibly two late papers. SG4 would like to have something to vote on for Saturday and a PDTS for Chicago. Sutter says library fundamentals coming out as well so it would be good to group if possible.

SG5 – Wong reports SG5 plans to meet in Bristol to discuss three papers up. Will have a number of experts flying in to discuss. Have been blocked by legal aspects from having PDTS ready.

SG6 – Crowl reports two papers in mailing. Have a few issues from library. Rumors of late papers to inform discussion. Meet for half a day or full day. Surprised if will be pushing anything out in this meeting or the next in terms of formal changes. Nothing on C++14 track.

SG7 – Chandler Carruth is not on call. Sutter asks if there are any comments. With no response, he suggests they may be pausing to reflect. Crowl says Carruth has been busy with his day job and has not had time to devote to SG7.

SG8 – Stroustrup reports SG8 has a document and had a teleconference. Sutter says intent is not to have SG8 meet separately. Stroustrup says Matt will be taking over EWG for as long as it takes. Meredith asks if it looks good for language feature coming forward at meeting. Would like to have library work coming out by C++17. Meredith says Dawes is concerned that LEWG does not have bandwidth to handle that workload. Request that SG8 provide work to help with library work. Stroustrup says SG8 would provide library based on TR and something that future library work could be based on. Sutter adds that SG8 should not just dump something over the fence, but actually help with the work.

SG9 – Sutter says Marshall Clow is not on the call. Nelson says there is one paper in mailing. Sutter asks if there are any other comments other than there is a paper. Meredith gives feedback that there is a lot of discussion, but lack of consensus on direction. Sutter says not to push for motion when there is no direction—that is just random motion.

## **2.2 Liaison reports**

### **2.2.1 SC22 report**

Sutter reports no meetings, one project proposal for filesystems, and canceled NP ballot for C++14. Need to have combined ballot post Bristol.

### **2.2.2 SC22/WG14 (C) report**

Sutter says WG14 will be co-locating with C for the Chicago meeting.

Plum reports that major activities at Delft meeting will be ballot resolutions about C security coding rule. Attempt is to create a standard for static analysis of C programs for computer security purposes. Delft meeting will come after Bristol meeting. Other than that we are working on defect report for 2011 standard. Nelson says work is being done on IEEE floating point standard. At Portland meeting WG14 expressed unanimous support for looking at Cilk Plus, which has been brought to C++ meetings. Crowl says there has been discussion about floating point at C++ and interaction with constexpr, which requires much cleanup. Existing C model has runtime dependencies that do not work with constexpr.

Sutter says several extensions that are being proposed in C and C++, and because there are different aesthetics and design, there is a risk of divergence. When we look at things like Cilk Plus is there anything we can do to look at major divergence between languages. Nelson says just because WG14 is looking at it that does not specify what happens. Is interested in keeping compatibility. Sutter asks what is your sense, as co-proposer, if C is likely to adopt language extension, is there added pressure to have C++ adopt the same. Stroustrup says whatever C adopts there is pressure to adopt in C++ in a compatible form. Nelson says Stroustrup is not wrong.

Meredith asks what is best way to make sure that C representative is well informed about decimals. Nelson says the best way is to have someone from Bloomberg attend C meetings.

Stroustrup says C++ is officially compatible with C. But there is no official statement that C is compatible with C++. Sutter says it has become clear that there is more pressure to diverge. Even compared to C++98 C++11 is a fresh new language. We have backwards compatibility, but we are not recommending old way of programming. That is affecting compatibility with C in new ways. Constexpr is an example. We should have conversation about if we still value C compatibility.

Stroustrup says that would be a useless discussion. We have again and again said we value C compatibility. I have not heard of such a discussion of happen in C about maintaining C++ compatibility. Plum says, yes that discussion happens. Stroustrup says I am not sure there is a single C++ feature that has been adopted compatibly in C. Don't want to make any compromises in C philosophy to adopt the C++ wording as stated. Plum believes it is no longer true that ISO SC22 imposed something on C++ that was not imposed symmetrically of C. At the initiation we needed to document where we document incompatibilities with C in an annex. That is not required since then. There is no requirement to document incompatibilities. The compatibility issue is a market place issue. That is interpreted by different people in different ways. That is different from any requirement from standards body.

Sutter believes that has long been the case. Stroustrup reiterates C has never made a clear statement of claims in regard to C++ compatibility. Sutter gives option for making progress: C++ can stop maintaining C compatibility. C++ has greatly benefited from C compatibility. Stroustrup agrees and adds that C has also significantly benefited from C++ compatibility. Sutter says that C++ has widespread adoption now. From marketplace, do we still benefit from compatibility? Would like to have discussion at end of Bristol meeting. Meredith asks if C++ should be based on C11 standard. Sutter says in Kona C++ voted in two out of three major C99 extensions. Balked at language extensions. C++ might refer to C11 instead of duplicating. Most of delta, in library side, is in mutexes, memory model, and atomics. If library can take a stance on if that would be helpful to reference C11 that would be helpful. Crowl says there is incompatibility in mutex realm. Issue will persist long term. Plum said that if we want anything more than #define compatibility we will have to talk about unifying working groups. If we take one idea and send to two committees then we will get two outcomes. Stroustrup agrees that as long as there are separate committees the number of incompatibilities will increase, the time spent on maintaining compatibility will increase, and users will be harmed. Sutter says it is coming time to have a productive discussion whether to merge or diverge. Merging will require a difficult political move. It might be liberation if we decide to stop compatibility. The default is we muddle around point by point. Meredith says it would be useful to have that discussion before LWG spends time on deciding to use C11.

## **3. New business**

### **3.1 Review of priorities and target dates**

Targeting CD out of Bristol.

### **3.2 Review of current mailings**

Sutter thanks Clark for making great spreadsheet. Suggest raising any questions about spreadsheet. A couple of TM papers marked for EVO instead of SG5? Nelson says impression is SG5 is deadlocked for direction and looking for feedback from EWG on that. Wong says contended on issue of cancelations and exceptions. At best give EWG an update on progress since Portland. Stroustrup is interested, could you send me a link? Nelson asks if it would make more sense to consider in concurrency instead of EWG. Wong asks for Boehm's opinion. Sutter asks for Wong, Boehm, and Stroustrup to decide. Stroustrup says he always prefers to have someone else do it. Would like to take a look, but would have someone else do work. Crowl says part of concern is that someone has been working very hard on working group and a fresh set of eyes is needed. Sutter would like chairs to coordinate which papers are considered where.

Sutter went through papers and found author names he did not recognize to make sure they would be attending the meeting, or the paper would have a champion.

Sutter asks if there are any other comments. No response.

### **3.3 Any other business**

Crowl asks if there will be facilities for technical discussion in evening. Orr says yes. Sutter says there is one request for allocator status and asks if there are any other evening sessions. Meredith requests concepts presentation. Clamage has one for Open MP. Sutter coordinates forming tentative schedule for evening meetings:

- (Mon) Open MP
- (Tue) Alisdair: C++11 allocator best practices
- (Wed) concepts lite update
- (Thu) TM

## **4. Review**

### **4.1 Review and approve resolutions and issues**

No resolutions or issues.

### **4.2 Review action items**

No action items.

## **5. Closing process**

### **5.1 Establish next agenda**

Sutter asks if there is any objection to using this agenda for the next meeting. No response gives unanimous consent.

### **5.2 Future meetings**

Next teleconference will be Friday 13 September 2013 the Friday a week before face to face meeting; after mailing, but before travel to face to face meeting.

Next face-to-face meeting is 15-20 April in Bristol.

### **5.3 Future mailings**

Pre-Chicago mailing deadline is 30 August 2013

### **5.4 Adjourn**

Meeting adjourned at 2013-03-29 17:12 UTC.