

Doc No: SC22/WG21/N3273
PL22.16/11-0043
Date: 2011-04-08
Project: JTC1.22.32
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Minutes, WG21 Teleconference 2011-03-04

1. Opening and introductions

The meeting was called on 2011-03-04 at 16:00 UTC.

1.1 Roll call of participants

The following persons were in attendance:

Name	Representing
Herb Sutter	Convener
John Benito	US
Tom Plum	US
Steve Clamage	US
PJ Plauger	US
Tana Plauger	US
Clark Nelson	US
Ville Voutilainen	FI HoD
Alisdair Meredith	UK HoD
Stefanus Du Toit	US, CA
Walter E. Brown	US
Pete Becker	US
Bjarne Stroustrup	US
Barry Hedquist	US HoD
Michael Wong	CA HoD
Detlef Vollman	CH HoD

1.2 Adopt agenda

Du Toit noted that a section “3.2 – Review of the current mailing” was missing from the agenda, and that the “any other business” section needed a section number. Du Toit noted that he would add the missing section and number the incomplete one as “3.3” if there were no objections.

Sutter asked whether there were any objections to adopting the agenda as amended.

There were no objections.

The agenda was approved with amendments.

1.3 Approve minutes from previous meeting

Brown noted that he was not an editor on the decimal floating-point standard – only Robert Klarer was.

Sutter asked if there were any objections to adopting the minutes from previous meeting.

There were no objections.

The minutes were approved.

1.4 Review action items from previous meeting

Action: Go back and restore previous project editors, e.g. performance and library TRs, to list. (Sutter)

Sutter noted that this action item was not completed yet.

1.5 Review of project editor and liaison assignments

Pete Becker is the main project editor. Backup is Lawrence Crowl.

Robert Klarer is the editor for the decimal floating point project. Backup is Pete Becker.

Brown is the editor for the special math functions project. Backup is Pete Becker.

Steve Clamage, Michael Wong, Clark Nelson, PJ Plauger, Tana Plauger, Michael Wong are the liaisons for WG14.

Benito noted that there was a strong relationship with WG23 as well.

Sutter clarified that there was no official liaison with WG23.

Some discussion on options for liaisons with that group ensued.

Du Toit noted that the WG23 web site listed several liaisons (unofficially) from WG21.

Plum agreed to be listed as an official liaison, but stated that he was concerned about listing others officially if they are not on this call.

Vollman volunteered to serve as well.

Sutter asked if there were any objections to appointing Tom Plum and Detlef Vollman as WG21 liaisons to WG23.

No objections.

Tom Plum and Detlef Vollman were appointed as WG21 liaisons to WG23.

2. Status, liaison and action item reports

2.1 Small group status reports

Core Working Group

Sutter noted that Adamczyk was unable to attend, so there would be no status report from Core, and discussion would instead happen at the Madrid meeting.

Voutilanen noted that there were only 4 remaining comments to be processed by Core.

Library Working Group

Meredith summarized the library working group status as having 26 Not Ready issues, including 8 from Concurrency, which he reported was a good status. He noted that the mailing included proposed guidelines for applying noexcept to the library in the form of N3248. He stated that he would like to revisit the idea of a forced termination of the program if noexcept were violated, which he expected to be controversial, but necessary to discuss. He noted that the other controversy was around removing features. Finally, he noted there were ongoing library issues about data races in exception handlers, which needed to be resolved in Madrid. Other than that, he reported that there were no critical issues.

Stroustrup noted that he felt it was safe to say that the noexcept paper (N3248) would be controversial.

Sutter stated that he wished to identify topics that are controversial and therefore need a lot of discussion. He said that noexcept sounded like a prime candidate, possibly needing Core involvement in addition to Library.

Meredith said that the group needed to close on that issue by Tuesday in order to get the guidance LWG needs for the rest of the week.

Sutter stated he would ensure that N3248 is discussed early in the week.

Becker raised a concern about atomics, feeling that there were design changes that happened at the last meeting that did not accomplish what they were supposed to accomplish.

Meredith noted that he would ensure Library dealt with this early as well.

Sutter added that N3257 – range-based for statements and ADL – was also likely to be controversial.

Stroustrup noted that it affected both Core and Library, and that he was not optimistic that the group would reach consensus for a change.

Meredith asked for guidance on how to handle out-of-scope issues. He reported that he had about 30 issues coming in post FCD, many of which were Tentatively Ready already.

Meredith stated that there was an issue about constexpr based on implementation experience. He said that no NB comments were related to this directly, but several papers proposed to add constexpr to the library. He noted that if these changes had an ABI impact, one ought to consider them in scope because they would require a “now or never” decision, but otherwise would think them to be out of scope.

Sutter stated that he would repeat the usual guidance given. Sutter explained that if something was a new feature request, allowing someone to specify something they could not do before, it would be out of scope, but if something fixed a bug but doesn't introduce new functionality, it would be in scope.

Sutter stated that for issues submitted post FCD, if they were new feature requests, regardless of ABI issues, the group could not discuss these. He added that someone would have to argue that something is a bug to handle it now, e.g. considering it a bug because of ABI issues.

P.J. Plauger noted that the person making a particular claim would always see it as important. Therefore he felt the group needed to have a firm rule that its job is to stabilize the standard at this point, and reject new features.

Sutter agreed and noted that the group would be breaking ABI compatibility anyways with major releases.

P.J. Plauger noted that Sutter was the final arbiter of these things, and stated that therefore he really believed Sutter needed to be strict in this regard.

T. Plauger added that any discussions on something new at this point would take away from things the group should be discussing to finish the standard.

Sutter suggested that Meredith take similar guidance, which is to be strict about not discussing any new features until all in-scope issues and NB comments are resolved.

Meredith affirmed that he would do so.

Brown felt that if the group was expending effort placing noexcept throughout the library, he did not see why the group should not do the same for constexpr.

Meredith answered that the justification for this inconsistency was the presence of several NB comments on noexcept, but no such comments on constexpr.

Sutter asked to confirm that at the current moment there was no discussion about removing constexpr.

Meredith confirmed that this was the case, because now that the group had implementation experience, those concerns were no longer an issue.

Sutter asked whether the guidance to Meredith was clear now. Meredith confirmed that it was.

Meredith stated that he hoped to open the floor for TR2 discussions at the end of the meeting.

Sutter encouraged Meredith to do so,

Brown asked whether the group officially had a TR2 work item before them.

Sutter answered that the group did not, but could create one at any time. He added that there was reason to wait until the group had work to be scheduled. He stated that he would create the SC22 work item when necessary.

Brown asked whether the committee needed to authorize Sutter to create such a work item. Sutter confirmed that it did.

Brown asked whether the group should plan on such a motion in the next meeting.

Sutter answered that it should not. He stated that the group should wait until they were ready, because the group previously had to close similar work items when they were created prematurely.

Evolution Working Group

Stroustrup noted that EWG had been closed down, taking no new issues, but that things considered “evolution” traditionally did keep coming up, e.g. the current discussions around range-based for. He noted that he would prefer not to discuss that or similar issues as evolution items.

Sutter asked whether there was an NB comment on that specific issue. Meredith said there was not, and added that it came out of later user experience.

Stroustrup noted he did not wish to create controversy at this point.

Stroustrup stated that the other issues that would have been considered “evolution” were the requests to withdraw features.

Sutter noted that N3234, N3250, N3258 seemed to be the relevant papers.

Sutter stated that in general, when the group talked about a change, without consensus for something new, even if everyone agreed that the status quo is the worst option, status quo would still be the default result.

Stroustrup stated that he had brought that up several times in the range-based for debate, but noted that it did not seem to make a difference.

Voutilanen felt the group could still reach consensus at the meeting even if there was no hope for consensus on the reflector.

Sutter summarized the major controversial topics as follows:

1. Noexcept – Core/Library
2. Range-based for – Core/Library
3. Atomics – Library
4. Removing Inheriting Constructors – Core
5. Removing User-Defined Literals - Core
6. Proposal to remove explicit from class-head – Core
7. Data races in exception handlers – Library/Core

Sutter asked, if the group could not agree to any changes based on any of the above issues, whether that would prevent the group from shipping the standard.

Stroustrup stated that he would prefer to still ship the standard.

Meredith stated that he knew there would be some No votes, giving Bloomberg (due to noexcept), and BSI (due to data races in exception handlers) as specific possible examples.

Sutter asked whether Meredith meant “no votes” at the level of voting no to an FDIS. Meredith confirmed that that was what he meant.

Sutter stated that he would be doing some informal polling to see where the group was at with current consensus.

Voutilanen reported that with status quo, Finland would still vote Yes on an FDIS. He said that even if some features were removed, he wouldn't like it, but it wouldn't be a deal breaker. He concluded that he was 90% sure there would not be a No vote from FI.

Becker raised a general concern about the library. He explained that usually the library worked by successive refinements. He said this had worked well in the past, but meant that one would not know that one was done until everything had been integrated and some stability was visible. He noted that atomics in particular had been thrashing, and that he was also concerned about noexcept. He stated that he thought these were significant problems, and that the group did not have a shared consensus on what these things meant and what they ought to look like, and therefore was concerned about shipping an FDIS.

2.2 Liaison reports

2.2.1 SC22 report

Sutter noted that there was nothing major to report since Batavia. He reported that the new JTC1/SC22 procedures were now in place.

2.2.2 SC22/WG14 (C) report

Benito reported that a WG14 meeting would be held in London one week prior to WG21 meeting in Madrid. He explained that WG14 will be using that meeting to

answer comments from their CD ballot. He added that the CD ballot passed unanimously.

Benito reported that WG14 had about 50 comments to address that were not considered editorial, from a total of 66 comments. With CD ballot as positive as it was, Benito expected to just move the document forward in London.

3. New business

3.1 Review of priorities and target dates

Sutter reminded the group that the goal was and had been to vote out an FDIS in Madrid. He stated that he deliberately scheduled what would have been the Fall meeting in 2011 in the Summer, so that the group would have one more meeting to meet the current deadline if necessary. He stated that if concerns could be addressed by making use of that meeting, that was one option available to the group.

Sutter stated that whatever the group shipped, it would have bugs in it. He noted that one possibility to improve on this would be to provide a TC to fix things later. Sutter concluded that the group should ask itself whether the FDIS is ready to ship with a TC in mind if necessary.

Sutter asked whether Becker's concerns with the atomics were helped by any of the options he explained.

Becker answered that his previous experience in software development would suggest requiring a product to have no stop-ship bugs for a week, and if one were found, to delay a release accordingly. He felt that having a TC as an option did not really help. He explained that a lot of unfinished work had been accepted into Library, and that it was not clear what the final state would look like at this point, with his specific areas of concern around atomics, futures and noexcept. He stated that he did not expect to be able to ship in Madrid. He felt there was a pretty clear set of things that needed to be fixed, but that the group would not have those ready in Madrid.

Sutter stated that with one extra meeting post Madrid, there was a decent probability that these things might be resolved. He noted that he was concerned about tradeoffs between quality and schedule predictability.

Stroustrup stated that based on experience, if one gave people more time, they would change their demands and ask for more time again. He noted that the committee was a couple of years past where users expected it to be, and could not afford any further delay.

Meredith stated that the library would never be complete, and that it was difficult to know when it was ready. He added that another meeting would be useful, but the group would need to know when to say “enough is enough”.

Sutter stated that how the group felt about stability depended on certainty about what would be coming next, and that not having such certainty would lower confidence.

Stroustrup stated that if he knew that there was consideration of not shipping in Madrid two months ago, he would not have planned to attend.

Sutter reiterated that the plan was absolutely to ship in Madrid, and that should be the plan kept in mind by the group. He clarified that the group was discussion concerns and worst case scenarios here.

Stroustrup stated that not having a firm plan for the dates would just lead to people bringing in new concerns and requests.

Sutter continued his earlier point, stating that part of what happened with C++0x was that people kept pushing for features because they were not sure when the next chance to get a feature in would be.

Sutter continued to state that, to address this, the group could set a schedule for future releases, e.g. every 2 or 3 years. He noted that others thought this might not be possible, but he felt the group could do it with some adjustments. He explained that with this approach, the group would have one or two meetings to propose new features, and the rest of the meetings leading up to a work item would be spent refining those.

Sutter explained that if the group had such an approach, the community would have a better understanding of its release schedule, in addition to the group. He stated that the group would be able to ship C++0x and every future version faster, since people would know what to expect in terms of when they can introduce features.

Sutter concluded that therefore, he would be proposing a regular cadence for C++ standards, including the one or two meeting limit for new features. He added that the actual direction taken would depend on consensus on the committee.

Meredith said that he was concerned about adding new features shortly after C++0x, but would be happy to do a TC.

Sutter answered that the group had done that anyways over the last 9 years. He noted that whether the group had shipped one or three standards in that time frame would not have made a difference to adding features continuously.

Meredith stated that he liked the idea of the process, but just was not sure of starting it immediately after C++0x.

Sutter felt that if the group did something along the lines of what was just suggested, it would not get a large list of new features right away, because there was still a backlog from C++0x. He noted that it also gave the group the option of deferring some controversial features so these could have more time to settle.

Stroustrup stated that such a release schedule would always give members an opportunity to say that something should be delayed, so nothing might ever get done.

Sutter stated that he was a bit more optimistic, since he believed this to be a fairly aggressive committee when it came to adding new things.

Voutilanen said he was concerned as to whether such a process would speed things up or slow them down. He noted he was all for releasing a new standard every 3 years, but that there were probably some downsides to that kind of schedule.

Stroustrup stated that a fixed schedule would be a good idea, but that it would be a bad precedent to use it as a reason to defer features.

3.2 Review of current mailings

Meredith noted that N3112 from the post-Rapperswil should be discussed in Madrid.

Sutter reviewed the 2010-11 mailing with the group.

WG21 Number	Subgroup	Status
N3180	Library	No action needed.
N3181	Library	
N3182	Library	
N3183	Library	
N3186	Core/Library	To be discussed.
N3187	Library	To be discussed.
N3188	Library	No action needed.
N3189	Library	No action needed.
N3190	Core/Library	No action needed.
N3191	Library	No action needed.
N3192	Library	No action needed.
N3193	Library	No action needed.
N3194	Library	No action needed.
N3195	Library	No action needed.
N3196	Core/Library	No action needed.
N3197	Library	No action needed.
N3198	Library	No action needed.
N3199	Library	No action needed.
N3201	Core	No action needed.
N3202	Core	No action needed.
N3203	Core	No action needed.
N3204	Core	No action needed.
N3205	Core	No action needed.
N3206	Core	No action needed.
N3207	Core	No action needed.
N3208	(Issues report)	
N3209	Core	No action needed.
N3210	Library	No action needed.
N3211	(Administrative)	
N3212	(Administrative)	
N3213	(Administrative)	
N3214	Core	No action needed.

N3215	Library	No action needed.
N3216	Core	No action needed.
N3217	Core	No action needed.
N3218	Core	No action needed.
N3220	(Administrative)	
N3221	(Issues list)	
N3222	(Issues list)	
N3223	(Issues list)	
N3224	(Administrative)	
N3225	(Working draft)	
N3226	(Administrative)	
N3227	Evolution/Core	No action needed.
N3228	Library	Determine whether in scope or not.
N3229	Library	Determine whether in scope or not.
N3230	Library	Determine whether in scope or not.
N3231	Library	Determine whether in scope or not.

Sutter reviewed the 2011-02 mailing with the group.

WG21 number	Subgroup	State
N3232	(Administrative)	
N3233	Core	To be discussed
N3234	Core	To be discussed
N3235	Library	To be discussed
N3236	(Issues List)	
N3237	(Issues List)	
N3238	(Issues List)	
N3239	Library	Post C++0x
N3240	(Administrative)	
N3241	Library	To be discussed
N3242	(Working draft)	
N3243	(Editor's report)	
N3244	(Administrative)	
N3245	(Issues List)	
N3246	(Issues List)	

N3247	(Issues List)	
N3248	Core/Library	To be discussed by end of Tuesday
N3249	(FCD Status)	
N3250	Core	To be discussed
N3251	Library	To be discussed
N3252	Library	To be discussed
N3253	Core	To be discussed – ensure this is in scope
N3254	Library	To be discussed
N3255	Library	Relevant part addressed editorially. Rest is Post C++0x
N3256	Library	To be discussed
N3257	Core/Library	To be discussed
N3258	Core	To be discussed

Voutilanen noted that the discussion of removing features should perhaps be done early in the week.

Stroustrup believe there would definitely be a lot of controversy around those papers, but that he was not sure how many people actually cared.

Becker stated he would like to see a time limit to discussing those.

Voutilanen stated that he would rather have the discussion happen Monday rather than Saturday.

Sutter agreed.

3.3 Any other business

Becker stated that the group would need to be careful about the review process once change requests had been integrated into the draft. He hoped that the group could be more formal about it in the current round, to ensure everything integrated has been reviewed carefully.

Voutilanen said that in past, the group had kept the amount of people reviewing the draft changes rather small, but that he thought it should be expanded to include all NBs. He added that additional reviewers would likely help improve quality.

Sutter noted that the group had a similar process for the FCD already, inviting many people to review. He explained that it was decided to name a small number of people as approvers in Pittsburgh, but that this was done only for logistical reasons to make approval reasonable. He said that he would expect that the motion to vote out an FDIS in Madrid would include appointing a review committee, while still inviting a wider group to participate in reviews.

Voutilanen said that this was the group's last chance, so they needed to be extra vigilant.

Meredith asked whether editorial comments could still be applied to the FDIS.

Sutter answered that once balloting happened for the FDIS, there were usually some editorial changes required by ISO. He stated that if minor typos and other simple editorial presentational problems are found, the group could usually fix those at that point as well.

Becker stated that as a result of producing the FDIS, he would need to do reformatting anyways. He explained that this was a mechanical process but could still introduce errors, with a minor possibility of introducing errors at that stage.

Sutter noted that the cover page would be changing as well. He added that he would like to request two documents, an N-numbered paper that says "Working Draft", and another that does not say "Working Draft."

Becker added that he would also be taking out change marks.

Meredith asked to confirm that the group would not get a post-meeting document with change marks. Becker confirmed this.

Stroustrup asked whether the group could have a document with change marks first, and then a second version without change marks to be reviewed. Becker said that it would depend on the timeline required.

Plum noted that tools might also be available to generate these change marks. Some more discussion on tools used to generate change marks ensued.

4. Review

4.1 Review and approve resolutions and issues

Sutter reviewed the list of controversial issues to be discussed early at the Madrid meeting:

1. Noexcept – Core/Library
2. Range-based for – Core/Library
3. Atomics – Library
4. Removing Inheriting Constructors – Core
5. Removing User-Defined Literals - Core
6. Proposal to remove explicit from class-head – Core
7. Data races in exception handlers – Library/Core

4.2 Review action items

Action: Go back and restore previous project editors, e.g. performance and library TRs, to list. (Sutter)

Action: Amend agenda to that used for this meeting. (Sutter)

5. Closing process

5.1 Establish next agenda

Sutter said he would add an item “3.2 Review of the current mailing” to future agendas.

5.2 Future meetings

Sutter reported that the future meetings were planned to be held as follows:

- Madrid, March 21-26
- Teleconference August 5, 2011
- Bloomington, August 15-19, 2011

5.3 Future mailings

Sutter reviewed the future mailing deadlines:

- Apr 8, 2011 – post-Madrid
- July 22, 2011 – pre-Bloomington

5.4 Adjourn

The meeting was adjourned at 2011-03-04 18:03 UTC.