SC22/WG21/N1170
J16/98-0027
25 October, 1998
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J16 Meeting No. 27
WG21 Meeting No. 22
6-9 October, 1998

Formal Minutes

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WG21 Meeting, Tuesday, 6 October, 1998

1. Opening and introductions

Plum called the meeting to order at 18:00PST, 6 October, 1998.

1.1 Welcome from host

Plum explained that there were three official hosts: Silicon Graphics Inc, Plum Hall Inc and Perennial Inc. He also noted that a lot of the local meeting arrangements had been made by Tom MacDonald of Cray Inc and that Simonsen (Denmark) had providing Internet access and networking courtesy of the Danish UNIX Users Group.

1.2 Roll call of technical experts

In attendance were:

Delegate name	Affiliation
Plum, Tom	Convener WG21
Kristoffersen, Jan	Denmark
Simonsen, Keld	Denmark (head of delegation), WG20 liaison
Kühl, Dietmar	Germany
Josuttis, Nicolai	Germany (head of delegation)
O?Riordan, Martin	Ireland (head of delegation)
Fukutomi, Hiroshi	Japan
Mitsuhashi, Fusako	Japan
Ota, Jerry	Japan
Hayashida, Seiji	Japan (head of delegation)
Andersson, Per	Sweden
Corfield, Sean	UK
Glassborow, Francis	UK (head of delegation)
Dawes, Beman	USA
Nelson, Clark	USA (head of delegation)
Koenig, Andrew	USA, Project Editor

1.3 Select meeting chair

Plum was acclaimed.

1.4 Select meeting secretary

Corfield acted as secretary.

1.5 Select language

Plum nominated English. Approved by acclamation.

1.6 Adopt agenda

The agenda, N1158 = 98-0015, was adopted by acclamation.

1.7 Select drafting committee

Plum noted that a drafting committee might be needed to draft any New Project proposals that might be agreed during the week. Simonsen volunteered and the Japanese delegation offered to assist him. Kühl also volunteered.

1.8 Approve minutes from previous meeting

Corfield said he had heard no objections to the minutes of the previous meeting. Plum asked if there were any and no one objected. The minutes, N1154 = 98-0011, were approved by acclamation.

1.9 Review action items from previous meeting

There were no outstanding action items.

1.10 Recognise documents

Simonsen brought forward a paper on Internationalisation issues and would obtain document numbers from Miller later.

2. Status, liaison and action item reports

All deferred until joint session.

3. New business

3.1 Publication of the International Standard

Plum said we should celebrate the FDIS ballot result. Applause. The ISO C++ Standard document is designated 14882 ("14 8 82"). Simonsen noted that a PDF version is available for download from ANSI?s web site. Plum noted that ANSI's price of $18 for the PDF download is the lowest ever for a standard and that we should encourage people to buy it (if ANSI is their usual Standards Body).

3.2 Defect reporting

Plum said we will discuss this in full committee but asked if anyone had any particular comments. So far we have two DRs and lots of known issues.

3.3 New Project proposal for Technical Report on performance

Plum said that, at the SC22 plenary in August, he & Simonsen reviewed the proposal against previous NP proposals and then Kehoe also reviewed it. Plum said "performance" is not just to do with speed, it also covers resource usage etc. O'Riordan said embedded / real-time market is more interested in repeatability than outright performance. Plum feels many of the embedded people who used C are now looking to C++ since C's revision is not focusing on that area. WG21 is therefore the "right place" for this discussion. Japan has already done two years? work on this subject. Kühl asked whether the work on performance issues would be co-located with the scheduled J16 meetings. Plum said yes.

3.4 Other new business

Simonsen said WG20 - Internationalization - is making a C++ binding and wants to talk to the group. Plum said this is purely a library issue.

4. Closing process

Plum agreed to chair the next meeting which will be in Dublin, Ireland, 12-16 April, 1999.

Currently, the only scheduled future meeting is in Kona, Hawaii, 20-26 October 1999. Plum said this would be a five day meeting, co-located with WG14, and covers Wed-Fri (20^{th}-22^{nd}) & Mon-Tue (25^{th}-26^{th}). Plum suggested an East Coast meeting in April 2000.

Plum moved to adjourn at 19:05PST, 6 October, 1998.

WG21: Unanimous in favor.

WG21+J16 Meeting, 7-9 October, 1998

1. Opening activities

Clamage opened the meeting at 9:06PST on Wednesday 7 October 1998.

1.1 Opening comments

1.2 Introductions

1.3 Membership, voting rights, and procedures for the meeting

Clamage explained voting procedures. Miller circulated the membership list and J16 attendance list and explained the document numbering.

1.4 Agenda review and approval

Document number N1159 = 98-0016. Agenda approved by acclamation.

1.5 Distribution of any documents that were not distributed before the meeting

None.

1.6 Approval of the minutes of the previous meeting

Motion by Miller/Sutter to approve N1154 = 98-0011 as the minutes of the previous meeting.

J16: Lots in favor, none opposed, none abstained.

1.7 Report on the WG21 Tuesday meeting

Plum summarized the WG21 meeting.

1.8 Liaison reports

The WG20 report was deferred to the LWG meeting. Simonsen reported that two TRs have been finalized: framework for internationalization and document 10176 - guidelines for design of programming languages - that relates to the [extendedid] Appendix of the C++ Standard which is now out of date. The new C draft standard is aligned with 10176. Suggested action to align the [extendedid] Appendix of 14882 with the new WG20 TR and the ISO C CD. The WG20 sorting standard is at CD level. Enhanced locales, document 14652, features an enhanced Posix syntax for character sets, Simonsen is editor.

The WG14 report was deferred because Benito is currently in a WG14 meeting.

1.9 New business requiring actions by the committee

Koenig asked for clarification on the purpose of the WG sessions. Plum said CWG & LWG have lists of issues to work on, mainly to deal with reported defects, questions and comments in a technical manner.

The committee recessed at 9:50PST on Wednesday, 7 October, 1998.

2. General Session

Clamage reconvened the meeting at 13:40PST on Thursday, 8 October, 1998.

2.1 Core WG

Gibbons summarized the WG?s progress. He said 48 issues had been covered, most were not defects or were very minor. A couple of large items have recommended solutions:

- Exception specifications should be part of the type system, i.e., statically checked. Myers noted that this might have a large impact on the library. Gibbons said the current situation is untenable as some parts of the Standard allow programs to compile but do the wrong thing. Ball said the previous attempt to provide type-like checking didn't work. Gibbons categorized that as a "shadow type system". Myers? concern centers around the library specification allowing implementers to choose whether or not to provide exception specifications - this proposal would potentially make several current implementations non-conforming. Further discussion is clearly needed - papers will appear in future mailings. Spicer noted that CWG voted all in favor with a few abstentions.

- Default initialization based on Koenig's paper in the pre-meeting mailing. CWG almost unanimously in favor of Koenig's recommendation. Koenig will attempt to provide revised wording. Koenig was keen to provide early guidance to users and implementers.

Template issues will be looked at by Core WG this afternoon. Gibbons said there were several ?extern "C"? issues where the Standard is vague. He said Core has a proposal to clarify behavior that contains a few items that might be controversial. He said calling ?exit()? within a signal handler was a problem because ?exit()? invokes static destructors which are library functions, hence it violates the rules in the Standard. Core want to make it undefined (as WG14 have done). WG14 have also said calling ?atexit()? within exit processing is undefined - we should adopt this. Myers wanted clarification about static objects constructed during exit processing. Gibbons said this should be undefined too.

2.2 Library WG

Dawes summarized the WG's progress. The WG have covered 70 issues so far out of 93. Most of these are minor issues that the WG closed, most at the level of typos.

Dawes said there is a paper on "namespaces for library extensions", N1166 = 98-0023 by Myers. This is preliminary work but represents what the LWG would like to progress into a TR. Wording to propose a TR should be available in Dublin. Interested parties should read this paper and contribute feedback to Myers. Myers wanted more information on what?s involved in making a TR proposal. Plum to discuss later on.

Dawes then discussed the WG20 Internationalization API proposal, N1168 = 98-0025. The sense of the LWG was to use c++std-intl to build consensus and formulate a possible C++ binding. Several possible approaches were briefly discussed in the WG but there was no agreement on the actual direction.

2.3 Performance WG

Kehoe summarized the WG's progress. They have draft a proposal for a New Project. They have volunteers to work on each section of the proposed report. Cygnus will host a web site for PWG containing various large documents. There are now three NP proposal documents that we need to decide on the approach:

- a combined performance and low-level programming TR
- a performance TR
- a low-level programming TR

Plum tried to explain why a single TR covering all performance and limited-resource issues was being proposed. Plum said the group felt it would be more productive to work on a single TR.

Plum said the majority of PWG wanted to split out the low-level programming TR. Myers asked for clarification that each TR needed a NP. Plum said yes. Plum said there were four NBs in support of this work with the fifth being confirmed just prior to the Plenary in August. A NP needs five NBs supporting to progress it. At the Plenary, two more NBs expressed support based on the addition of the low-level programming issue. Plum is concerned that we might lose NB support if we propose to split the TR.

WG21 straw vote to support a single TR: 3 yes, 3 don't know, 1 abstain.

WG21 straw vote on supporting two TRs: most NBs didn't know.

Plum noted that nothing on the PWG agenda would involve Core extensions, only Library extensions. Josuttis asked whether we could have a WG21 meeting at some point this week to discuss this. Plum agreed to defer further discussion until Friday.

2.4 Handling DRs

Plum explained the proposed process as detailed in the minutes of the Nice meeting (March '98), N1154 = 98-0011.

- The public can submit issues via comp.std.c++ or the UK panel. The moderators of comp.std.c++ or members of the UK panel can reject issues or forward them to the issue list maintainers.
- CWG and LWG can also bring forward issues directly to the list maintainers.

Then CWG and LWG work on the issues lists. Potential DRs are brought to the full committee (J16). The project editor takes the result of the J16 decision and produces the official DR list. The DR list goes forward to the Convener.

Also, NBs can create DRs that go directly to the Convener.

The Convener forwards DRs periodically to SC22. DRs are then worked on by the full committee. The results are then voted on (at the following meeting) and published. Dawes said LWG wanted to expose the issues list to the public much earlier in the process. Glassborow also spoke in favor of making the issues list very public.

The committee recessed at 15:25PST.

3. Working Groups, core and library.

Core, Library and Performance WGs worked from Wednesday morning through Thursday lunchtime and Thursday afternoon onwards.

4. Review of the meeting

Clamage reconvened the meeting at 8:44PST on Friday 9 October 1998. Clamage said the WG reports indicate that a lot of useful work was done at this meeting. We also have the basis of the DR process agreed. There will be a brief US Tag meeting immediately after this J16 meeting closes.

4.1 Formal motions

There were no formal motions, not even to approve the WP! Laughter. Saks wanted to know if we were voting on the NP proposals. Plum said Nelson needs a sense of J16 in order to cast a vote in the WG21 meeting later. More discussion about process. Plum felt we had formal motions - the NP proposals. Corfield objected that we had not yet agreed which combination of NP proposals should go forward. Plum affirmed that he intended to act on whatever consensus was reached in WG21.

Clamage declared that we were in committee of the whole so we could conduct straw votes.

Plum felt that J16 had agreed in principle to support the result of either proposal (one combined NP or two separate NPs). It was clarified that neither of these two options was actually represented by a paper in the pre-meeting mailing.

Corfield said the only real concern is a procedural one: we know we have enough NB support for one NP but we don't know for sure whether we will get enough NB support for the portable I/O NP if we split it off on its own. Simonsen agreed and suggested our fastest and most secure way forward was to submit one NP.

Corfield spoke out strongly against trying to split the work because we have no idea whether we'd get the support for the portable I/O work whereas almost everyone actually wants to do the work. Simonsen agreed. Koenig voiced support for Simonsen?s and Corfield?s position: we go forward with one NP and think about splitting it later. Sutter agreed and said we can deal with organizational issues of the document later.

J16 straw vote indicating preference for a single combined NP or two separate NPs:

J16 straw vote: 8 in favor of a single NP, 9 in favor of two NPs, 7 abstained.

J16 straw vote indicating support for either approach:

J16 straw vote supporting a single combined NP: 16 in favor, 3 opposed, 3 abstained.

J16 straw vote supporting two NPs: 11 in favor, 4 opposed (to at least one NP), 8 abstained.

Straw votes indicating support for each separate NP:

J16 straw vote to support performance NP without I/O: 22 in favor, 0 opposed, 0 abstained.

J16 straw vote to support portable I/O NP: 12 in favor, 2 opposed, 9 abstained.

Nelson asked for a show of hands indication of the level of participation:

- J16 members likely to participate in performance NP work: 9.
- J16 members likely to participate in portable I/O work: 6.

Convener proposes to put forward a single combined NP:

WG21 straw vote: UK, Ireland, Canada, US, Denmark in favor; none opposed; Japan, Germany, France abstain.

Convener proposes to put forward wo separate NPs:

WG21 straw vote: Denmark, US in favor; none opposed; UK, Ireland, Canada, Japan, Germany, France abstained.

Clamage declared the committee to be back in General Session.

4.2 Review of action items, decisions made, and documents approved by the committee

One action item omitted from yesterday: a request from WG14 to identify those CWG/LWG issues that might impact WG14. Dawes felt that part of the list maintenance should probably include this anyway. Simonsen volunteered to help coordinate this.

Miller asked what the status of the DR list was. Koenig said we have no confirmed DRs yet to be placed in a report. Plauger clarified that the Project Editor has the authority to declare a Defect Report but the Convener officially maintains the list.

5. Plans for the future

5.1 Next meeting

[Note: this topic was actually covered in General Session on Wednesday, due to O?Riordan?s commitments on Friday, but is listed here for consistency with the agenda.]

O'Riordan discussed the next meeting in Dublin. More details will be in the post-meeting mailing. The meeting will be 12-16 April '99.

5.2 Mailings

Miller asked that people email him copies of any documents they created here. Deadlines are 23 October 1998 for post-Santa Cruz and 23 February 1999 for pre-Ireland mailings.

5.3 Following meetings

Plum Hall is hosting the October 1999 meeting in Kona, Hawaii. Clamage asked people to think about hosting future meetings. Simonsen is looking into hosting a meeting in Denmark in 2000.

Plauger moved that we thank our hosts. Applause. Plum noted that Perennial should be recognized for the networking supplied.

Motion by Glassborow/Charney to adjourn:

WG21+J16: lots in favor, none opposed, none abstained.

Appendix A - J16 Attendance list

Name	**Organisation**	**W**	**Th**	**F**
Dawes, Beman	(self)	V	V	V
Gibbons, Bill	(self)	V	V	
Myers, Nathan	(self)	A	A	A
Koenig, Andrew	AT&T	V	V	V
Horn, Peter	CAD-UL	V		
Charney, Reg	Charney & Day	V	V	V
Sutter, Herb	CNTC	V	V	V
Comeau, Greg	Comeau Computing	V	V	V
Ward, Judy	Compaq Computer	V	V	V
Kehoe, Brendan	Cygnus Solutions	V	V	V
Becker, Pete	Dinkumware Ltd	A	A	A
Plauger, P.J.	Dinkumware Ltd	V	V	V
Plauger, Tana	Dinkumware Ltd	A	A	A
Adamczyk, Steve	Edison Design Group	A	A	A
Spicer, John	Edison Design Group	V	V	V
De Dinechin, Christophe	Hewlett Packard			A
Vandevoorde, David	Hewlett Packard	V	V	V
Wan, Chichiang	Hewlett Packard	A	A	
Colvin, Greg	IMR	V	V	V
Wiegley, John	Inprise Corp (Borland)	V		
Nelson, Clark	Intel	V	V	V
Suto, Gyuszi	Intel	A	A	A

Andersson, Per	Ipso Object Software	V	V	V
Munch, Max	Lex Hack & Associates	A	A	A
Quiroz, Cesar	Mentor Graphics / Microtec Inc	V	V	
Corfield, Sean	Object Consultancy Services Ltd	V	V	V
Geoffrion, Angelique	Perennial	A		
Krit, Habib	Perennial	V	V	V
Plum, Tom	Plum Hall Inc	V	V	V
Fitzpatrick, Liam	Programming Research Ltd	V	V	V
Wilcox, Tom	Rational Software Corp	V	V	V
Glassborow, Francis	Richfords	V	V	V
Saks, Dan	Saks & Associates	V	V	V
Rouse, Jack	SAS Institute	V	V	V
Austern, Matt	Silicon Graphics Inc	V	V	V
Wilkinson, John	Silicon Graphics Inc	A	A	A
Miller, William M.	Software Emancipation Technology	V	V	V
Ball, Michael S.	Sun Microsystems Inc	V	V	
Clamage, Steve	Sun Microsystems Inc	A	A	V
Crowl, Lawrence	Sun Microsystems Inc	A	A	
Gafter, Neal	Sun Microsystems Inc	A	A	
Fischer, Leonard	Trax Softworks	A	A	A
	Total voting	**28**	**26**	**24**
	Total attending	13	12	9
	Overall total	**41**	**38**	**33**

WG21 Meeting, 9 October, 1998

Plum reconvened WG21 at 10:41PST Friday 9 October 1998.

Plum asked that we repeat the introductions since we have different delegates present than for the 6 October, 1998 session.

Delegate name	**Affiliation**
Plum, Tom	Convener WG21
Sutter, Herb	Canada (head of delegation)
Kristoffersen, Jan	Denmark
Simonsen, Keld	Denmark (head of delegation), WG20 liaison
Schumacher, Georges	France
Lextrait, Vincent	France (head of delegation)
Kühl, Dietmar	Germany
Josuttis, Nicolai	Germany (head of delegation)
Fitzpatrick, Liam	Ireland (head of delegation)
Fukutomi, Hiroshi	Japan
Mitsuhashi, Fusako	Japan
Ota, Jerry	Japan
Hayashida, Seiji	Japan (head of delegation)
Corfield, Sean	UK
Glassborow, Francis	UK (head of delegation)
Nelson, Clark	USA (head of delegation)
Koenig, Andrew	USA, Project Editor

Plum explained that the purpose of this meeting was to approve forwarding the NP proposal. Kristoffersen feels it doesn’t matter whether we have one or two NPs but it seems reasonable to move forward with one combined NP and later split it if necessary. Plum said we seem to have the support for the combined work even if there is not as much specific support for the portable I/O section of it. Plum said we understand that delegates? votes here do not guarantee what the actual SC22 vote will be. Plum confirmed that we can always split a TR in the future if we need to and that there was no guarantee that the resulting TR would look similar to what is currently on the table in terms of the technical details.

Plum called for a formal vote to support forwarding a single combined performance NP:

WG21: 7 in favor, 0 opposed, 1 abstain (France).

The NBs in favor were Canada, Denmark, Germany, Ireland, Japan, UK, US.

Plum requested that we try to draw new people to the C++ standards process whose background is embedded / real-time etc.

Simonsen would like WG21 to review two FCDs from WG20. We should be prepared to discuss this in Dublin. One is on sorting, the other is on locale issues.

Glassborow feels the co-location of WG14 & WG21 has been very beneficial and wanted to extend thanks to WG14 for having us around. He also said that we should consider co-location for the year 2000 (we already have a co-located meeting in Hawaii in 1999). Glassborow felt that the co-located meetings would benefit from being in the US. Plum proposed that we thank WG14 for their excellent liaison and responsiveness. Motion accepted by acclamation.

Benito said that the co-located meeting was also useful for WG14 but their schedule for Hawaii (October 1999) was not yet fixed.

Motion to adjourn.

WG21: Unanimous in favor.

Plum adjourned the meeting at 11:18PST, 9 October, 1998.