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Programming Language C++

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## **Report From 1995 SC22 Plenary Meeting**

I attended the ISO/IEC JTC1/SC22 annual plenary meeting September 18–22, 1995 in Annapolis, MD. This meeting was attended by the SC22 chairman and secretary; by most SC22 WG conveners; and by representatives of Austria (proxy), Canada, Denmark, Finland, France, Germany, Japan, Netherlands, United Kingdom, and the United States. Korea was represented as an observer.

Tom Plum (with the US delegation) and P. J. Plauger (WG14 Convener) were at the meeting.

### **1. New DIS Procedures**

The new DIS procedures taking effect April 1, 1995—which WG21 has discussed before—were still topics of discussion. It is clear that the DIS submitted for balloting must be virtually the camera-ready copy for the final standard. Minor spelling and printing errors may be corrected, but no changes for content, presentation, or clarification are permitted. Non-normative pieces of the standard are likewise included in the no-change rule. The table of contents, index, etc., will have to be in their final form before DIS. (WG21 is currently scheduled to approve final DIS text at our March, 1997 meeting.)

Any errors discovered in the DIS must be handled by publication of a Technical Corrigendum (TC), and SC22 expects that some WGs may have to issue TCs almost concurrently with the IS, as a consequence of the new policy.

Also, there is now the concept of a “Final CD,” which is the CD that ITTF will review and on which they will submit comments related to formatting. (Formerly, that could be done during DIS.) WGs must state whether a CD should be considered “final” or not when submitting it. WG21’s next CD ballot will be denoted the “Final CD.”

### **2. WG21 Schedule**

SC22 accepted our new schedule without objection. The SC22 chairman had earlier implored conveners to make their schedules “realistic,” and I believe our new schedule meets that requirement. (Although this is the second time we’ve changed it.)

### **3. Changes to the Working Paper; Meetings During Ballot Periods**

It was emphasized at the meeting (not in reference to WG21) that any changes to a CD must be traceable to ballot comments, or to obvious errors. Working groups should refrain from other changes. We must keep this in mind at all future meetings, beginning in Tokyo, and be especially careful of it during the final CD ballot.

In particular, Japan noted that our schedule included a meeting during the Final CD ballot period (i.e., Stockholm, July 1996), and that we had had such meetings during previous ballots, at which we had voted changes to the draft. This is generally in violation of SC22 procedures. Bill Plauger and I explained that we were trying to make progress on a lot of open issues that were submitted by National Bodies, either as part of official ballots or as anticipated future ballot comments, and there was support for this from the US and UK.

To resolve this issue, I stated that we would decide at our November meeting whether to hold the July 1996 meeting. I agreed that, should we decide to hold the meeting, we would take no votes to change the language (i.e., the CD). We could use the meeting to prepare proposals for the November meeting (Hawaii), or for national body representatives (e.g., X3J16) to discuss their position on the Final CD and to draft comments.

#### **4. C and C++**

In conjunction with the WG14 (C) report, several countries reiterated their desire that C and C++ remain closely tied together. The current definition of C++ is not a problem, but there was some concern that the new revision of C might result in incompatibilities. Bill Plauger repeated WG14's intent to maintain the largest possible intersection between the two languages, but did remark that WG14 felt that C and C++ were separate languages and some small divergences in the languages (e.g., NCEG arrays) were possible. He stated that WG14 was by nature being very conservative about changes.

#### **5. Electronic Document Distribution**

A lengthy ad hoc session was held to discuss experience with the JTC1 guidelines on electronic document distribution, which provide for distribution of all JTC1 documents in multiple formats (RTF, Word, and WordPerfect) on PC-compatible floppy disks. The thrust of the ad hoc's report was: 1) we don't like floppies; 2) we don't like RTF, Word, and WordPerfect formats; 3) we do like network distribution, FTP sites, and email; and 4) we do like SGML/HTML, PostScript, and PDF. The report will be used as input to a JTC1 ad hoc meeting in October 1995 in New York City, which I expect to attend as part of the SC22 delegation.

SC22 has decided to go ahead on its own and establish an FTP site to use for document distribution, since almost all the SC22 WGs are doing it already and JTC1 is likely to permit it under the revised guidelines.

Some interesting facts emerged as the other WGs explained how they do their standards. Most use LaTeX, with TROFF second. One or two use Frame, one uses SGML, and one uses WordPerfect (unsuccessfully). Many use custom tools on the input, including consistency checkers (for formal descriptions) and version control. Most felt that SGML was a good goal, once tools become more generally available. There was no support for converting any existing standard out of its current format. Also, the C++ standard is nowhere near the largest one; several are larger.

Copyright issues were raised by several people during breaks, and it's clear that the situation is confused.

#### **6. World Wide Web**

SC22 was asked to provide input to the establishment of Web pages for JTC1 and its subcommittees and working groups. An ad hoc group met and agreed on a set of guidelines that I think are quite reasonable. A couple of people will refine it more over the next month or two. Denmark is offering resources to host pages for SC22 and its WGs. We will need a responsible person to support WG21's home page.

#### **7. Language-Independent Arithmetic Standard**

There was a presentation on ISO/IEC 10967-1, *Language Independent Arithmetic Part I: Integer and Floating Point Arithmetic*, and the follow-on ISO/IEC 10967-2, *Language Independent Arithmetic Part II: Mathematical Procedures*. Part I is published; Part II is nearing CD stage. Both attempt to extend the accuracy and error-reporting foundation established by the IEEE 754 (IEC 559) floating point standard into programming languages (to fundamental operators and to library functions, respectively), but they do not strictly depend on that (hardware) standard. The Ada95 standard takes advantage of the LIA standards. Languages wishing to include LIA must develop bindings to their languages. Conformance tests are already available in the public domain. Future LIA work will include complex arithmetic.

#### **8. Miscellaneous**

SC22 requests that each WG have at least two people who are capable—by skills and possession of the necessary hardware and software—of supporting the working draft. I thought this was true in the past, and I'll verify it with Andy.