ISO/IEC JTC1/SC22/WG9 N 651

Draft Minutes

Meeting #88 of ISO/IEC JTC 1/SC 22/WG 9

Thursday, 10 October 2024

Meeting #88 of WG 9 was held Thursday, 10 October 2024. The meeting began at 16:38 UTC. The meeting was virtual.

AGENDA

Opening Orders, Meeting Convenor

Introductions and Reports

Liaison Reports and Introductions

- Ada Europe: Dirk Craeynest
- SIGPLAN HILT: Tucker Taft and Alok Srivastava
- WG 23: Erhard Plödereder
- Fortran: Van Snyder

Convenor's Report

- Relaxed criteria for no-cost availability of deliverables.

Project Editor Reports (as needed)

- IS 8652: Randy Brukardt
- IS 15291: Bill Thomas and Greg Gicca
- TR 15942: Alejandro Mosteo
- TS 24718: Alan Burns and Tullio Vardanega
- IS 18009: Erhard Plödereder
- TR 24772-2: Joyce Tokar
- TR 24772-6: Stephen Michell, Erhard Plödereder, Tullio Vardanega

Rapporteur Group Reports (as needed)

- Report of Ada Rapporteur Group: Steve Baird, Chair
- Report of Annex H Rapporteur Group: Joyce Tokar, Chair

Review of Open Action Items and Unimplemented Resolutions

Committee as a Whole

Unfinished Business

- Resolution 86-4 ARG draft plan for the next set of enhancements to the Ada language

New Business

Scheduling of Future Meetings

Review of New Action Items

Final Consideration of Resolutions

Recess

Opening Orders

Call to Order

Appointment of Meeting Secretary

ISO Code of Conduct (CoC) review

> https://standards.incits.org/apps/group_public/document.php?document_id=138721

Welcome and Administrative Arrangements

Approval of the Agenda

Approval of N646: Meeting #87 Minutes.

Reports and Introductions

Austria – Johann Blieberger (HoD)
Nothing to report.

Canada – Brad Moore (HoD)

Finland – Niklas Holsti (HoD)

Italy – Tullio Vardanega (HoD)

Portugal – Luis Miguel Pinho (HoD)

Spain – Alejandro Mosteo (HoD)

Switzerland – Nicholas Kaethner (HoD)

UK – Jeff Cousins (HoD)

John Barnes' book "Programming in Ada 2022" was said to have been released in August 2024 by Cambridge University Press, though delivery is quoted as 3-7 months.

The UK NB has resumed giving a grant towards travel to international meetings, though at only about three quarters of the level when Ada 2005 was being worked on, despite roughly 80% inflation since then and the pound having fallen around 15% against the dollar and 25% against the euro.

The UK NB has disbanded most of its language-specific technical panels. If someone wishes to continue as a UK expert then they will have to join the parent all-language administrative committee and attend at least one in three of its meetings (though this can be virtual). It is feared that some UK experts may drop out of standardisation work as a consequence.

The UK delegation is Jeff Cousins and John Barnes for this (virtual) meeting of WG 9.

Please note that I may be changing Internet provider. An alternative e-mail address is jeff.cousins59@gmail.com

USA – Tucker Taft (HoD)

Guests

AGENDA

Liaison Reports and Introductions

Ada Europe – Dirk Craeynest

Ada-Europe Liaison Report to WG9 for meeting #88
Ada-Europe Liaison Representative, Dirk Craeynest

Ada-Europe would like to inform the WG9 convener that its liaison delegation to Meeting #88, held in virtual mode on Thursday 10 October 2024, will consist of Dirk Craeynest and Erhard Ploedereder.

Mid June, the Ada-Europe conference (AEiC 2024) [1] took place in Barcelona, Spain. It was hosted by the Barcelona Supercomputing Center, had a packed program, good attendance, and a mixed audience, both with respect to old vs. new and old vs. young participants.

The final day offered 4 workshops, including the new Ada Developers Workshop [2] in the style of the Developer Rooms at FOSDEM, the annual global open source event in Brussels. That full-day Ada workshop was held in hybrid mode and had around 35 participants.

[1] http://www.ada-europe.org/conference2024
[2] http://www.ada-europe.org/conference2024/adadev.html

Preparations continue for the next Ada-Europe conference (AEiC 2025), which will return to Paris, France, 11 years after Ada-Europe 2014 [3] was held there. It is organized in collaboration with Ada-France, and will be held at the École des Mines, in the Quartier Latin in the center of Paris, from 10 to 13 June, 2025. The conference web-site [4] and the Call for Contributions will be available shortly.

We reconfirm our usual hospitality agreement for WG9, ARG, HRG, and WG23, to co-locate their meetings at our conference.

[3] http://www.ada-europe.org/conference2014
[4] http://www.ada-europe.org/conference2025

Investigations are ongoing for the next Ada-Europe conferences (AEiC 2026 and 2027). As usual, candidates to hosting these or future conferences are welcome.

Production of the Ada User Journal (AUJ) [5] continues as planned. We are working hard to reduce delays due to the busy schedule of the all-volunteer Editorial Board.

[5] http://www.ada-europe.org/auj

The publication of the Ada 2022 Language Reference Manual by Springer in its LNCS series is still pending. Recently, Springer finally reported that availability is expected before the end of the year. Ada-Europe is ready to place a group order for its interested members.

SIGPLAN HILT – Tucker Taft and Alok Srivastava

Note that SIGPLAN HILT will be focused on academic and technical issues, languages (e.g., Rust), formal methods, and so on, as compared with the more user-oriented focus of the Ada User Society. WG 9 members are invited to join the SIGPLAN HILT technical committee.

WG 23 – Erhard Plödereder

Since the last report, progress has been made on the C++ and Python Parts during bi-weekly meetings, with a brief interruption for the summer holidays. For an overview of the available Parts, please refer to my June 2024 report.

Regarding the free availability of the 24772 Parts, the signals from the ISO committees have been promising, although a formal decision from ISO has yet to be communicated.

On September 26th, WG23 met as a whole to discuss further progress of the Parts. The primary question was whether the Parts of IS 24772 should be submitted to ISO as Technical Reports or as International Standards. The group unanimously decided in favor of pursuing International Standards.

WG23 will make the necessary editorial adjustments to meet the requirements for International Standards. If WG9 wishes to engage further in the process for Ada and SPARK, beyond my own participation, please inform either WG23 or myself about additional participants.

As five language Parts stand (nearly) ready to for official submission, it was decided to stage the submissions in three to six months intervals, so that there is enough time to deal with national comments and to collaborate with the ISO editor. In the case of Java, an additional round of early comment collecting in the form of a Committee Draft Ballot is planned. The other Parts will follow the standard route for International Standards with the tentative submission order being Ada, C, SPARK, Fortran, and Python.

Furthermore, it was decided to propose an Amendment to IS 24772-1, as the work on the language Parts has revealed additional vulnerabilities that should be addressed in Part 1. Corresponding Amendments to the language Parts should follow in due time. Foremost is the vulnerability of Unicode characters that allow the visual appearance of programs to differ significantly from the program actually compiled. This plan was approved by the SC22 Plenary meeting that followed the WG23 meeting.

The next plenary meeting of WG23 is scheduled for Sept 10th, 2025.

Fortran, INCITS/PL22.3 – Van Snyder (apologies)

[AGENDA](#)

Convenor's Report
Activities since the Last Session

I attended the JTC 1/SC 22 Plenary in London, 22-23 September 2024.

Per AI-87-1, I submitted the paperwork to SC 22 requesting TS 24718 to be freely available (but not the Ada 2022 IS). SC 22 agreed to submit it to JTC 1 for a final decision.

SC 22 approved the establishment of ACM SIGPLAN-HILT as a Category C Liaison to WG 9 with Alok Srivastava as the Liaison Representative.

SC 22 voted to keep the POSIX Ada Binding standard in the "Stabilized" state. (This is ISO/IEC 14519:2001 POSIX Ada Language Interfaces — Binding for System Application Program Interface.)

[AGENDA](#)

Project Editor Reports (as needed)

IS 8652 (Information Technology--Programming Languages - Ada) (Randy Brukardt)

IS 15291 (ASIS) (Bill Thomas, Greg Gicca)

TR 15942 (Guidance for the Use of Ada in High Integrity Systems) (Alejandro Mosteo)

IS 18009 (Conformity Assessment of an Ada Language Processor) (Erhard Plödereder)

TS 24718 (Guide for the Use of the Ravenscar Profile in High Integrity Systems) (Alan Burns, Tullio Vardanega)

Nearing completion with editorial changes.

TR 24772-2 (Guidance to avoiding vulnerabilities in programming languages – Vulnerability descriptions for the programming language Ada) (Joyce Tokar)

TR 24772-6: (SPARK Part of Programming Language Vulnerabilities) (Stephen Michell, Erhard Plödereder, Tullio Vardanega)

[AGENDA](#)

Rapporteur Group Reports (as needed)

Rapporteur Report ARG

(ARG matters are also in the Unfinished Business section.)

Following is the list of approved AIs submitted to WG 9 for approval at their October meeting.

AI22-0033-1/04 2024-04-22 -- Additional terms and definitions
AI22-0091-1/04 2024-05-09 -- Generalize prefixed views
AI22-0094-1/06 2024-09-11 -- Assertion policy and preelaborability
AI22-0096-1/02 2024-04-22 -- Ada and OpenMP
AI22-0097-1/05 2024-07-19 -- Usage Advice (Part 2)
AI22-0098-1/04 2024-05-01 -- More presentation fixes
AI22-0099-1/02 2024-03-08 -- Object_Size and conversions of access-to-object type
AI22-0100-2/03 2024-05-03 -- Upper bound calculation
AI22-0102-1/03 2024-05-03 -- Substitute parameter for UTF Decode functions
AI22-0103-1/02 2024-05-03 -- Array Aggregate Double Iteration
AI22-0104-1/03 2024-06-29 -- Slicing of Vectors
AI22-0105-1/02 2024-05-01 -- Meaning of conforms to this Reference Manual
AI22-0106-1/03 2024-07-03 -- Multi-dimension array_aggregates and iterators
AI22-0107-1/03 2024-05-03 -- Specifying the Storage_Size for the environment task
AI22-0108-1/02 2024-07-18 -- Usage Advice about File Renaming
AI22-0109-1/01 2024-06-27 -- Using class-wide types with user-defined literals
AI22-0110-1/01 2024-07-01 -- Disallow Put_Image aspect specs for interface types
AI22-0111-1/02 2024-07-09 -- Class-wide Container Aggregates
AI22-0112-1/02 2024-07-11 -- Assignment to generalized references with a target name symbol

Motion to approve: Tucker, Second: Jeff; approved unanimously.

Regarding the AdaCore language extensions, Raphael Amiard (AdaCore) agreed that more cooperation with the ARG would be good. Some of the proposed extensions, out of the Ada design mainstream, will be packaged separately and given their own name. The remaining are very useful and will be actively considered by the ARG. [Tucker]

Rapporteur Report HRG

[AGENDA](#)

Open Action Items and Unimplemented Resolutions

This is the "To Do" list for WG 9. Some are informal action items assigned to various participants. Some are formal resolutions, which are not yet implemented. Some items are simply in suspense awaiting action by other groups.

AI-78-3: WG 9 members should individually prepare to discuss WG 9 work items after delivery of Ada 202x. Examples could include: additional activities for the HRG along reliability and security lines; co-joining efforts with the real-time workshops in order to produce standards-related documents; adoption of SPARK and its environments into the WG9 scope.

Status: Done.

AI-81-3: Pat to get the WG 9 documents transferred to the ISO Documents facility.

Status: Open, pending resolution of retaining public free access to the documents in the official ISO document system. Not looking good at the moment…

AI-82-2: Alejandro to submit sections of TR 15942 to WG 9 as they become available.

Status: Open. (Note that Tucker volunteered to be the mentor.)

AI-87-1: Pat will go through the process of requesting TS 24718 to be freely available (but not Ada 2022 IS).

Status: Done. Details in Convenor's Report.

AI-87-2: Tullio will identify a proposed way to implement the General Principles and will present it at the December meeting.

Status: Pending.

AI-87-3: Pat to send email to determine when the December meeting will be held, i.e., either the 4th or the 11th. The exact date for the June 2025 meeting will be identified at that meeting.

Status: Done. The consensus was that the meeting will be held December 4th.

AGENDA

Committee as a Whole

AGENDA

Unfinished Business

[In Resolution 86-4 WG 9 requested the ARG to submit a draft plan for the next set of enhancements to the Ada language. The following is their response.]

Resolved, the ARG should produce a Corrigendum document to be submitted to WG 9 in early 2025. Beyond just bug and wording fixes, the Corrigendum can include new aspects, attributes, and pragmas, as well as simple and obvious extensions to existing features (such as allowing class-wide uses of user-defined literals).

Reasons:
(1) We have over 90 approved corrections to the Ada 2022 standard, and several more in progress. There is enough change to justify a Corrigendum.

(2) We have not agreed upon, as of yet, nor made significant progress defining, any large new features for Ada past Ada 2022. Thus, it is premature to create a new standard at this time. Additionally, given the lack of implementations for parts of Ada 2022, it makes sense to give implementors more time to catch up.

(3) A Corrigendum contains changes in one of three categories: "error", "clarification", or "omission". For previous Corrigenda, we have defined "omissions" quite broadly, including enhancements like raise expressions, aspect Exclusive_Functions, and aspect Predicate_Failure. We can do this again.

(4) It is probable that we will have to make some reorganizations of the Standard before another standardization to satisfy ISO formatting requirements. That will both delay standardization and increase the effort needed.

(5) JTC1 wants a plan for future work. Doing a Corrigendum now will provide an immediate answer as well as allowing us to "kick the can" several more years into the future as to any substantial changes.

(6) Uncertainty of future:
(A) The WG9 Convenors' term runs until late 2025. It's undecided who will be funded to take over the role after that.
(B) The Ada Project Editor does not currently have a source for reimbursement for the US participation fee in future years.
(C) More generally, funding for work by the current Project Editor is not guaranteed past 2024.

Because of these factors, it makes the most sense to deliver a document in early 2025 that hopefully can be pushed through the shorter Corrigendum process, using the existing institutional knowledge.

Doing a Corrigendum now will also ensure that the majority of the work that has been done since 2022 will get preserved within the Standard itself.

AGENDA

New Business

AGENDA

Scheduling of Future Meetings

Per Resolution 87-3, there will be a December 4th 2024 WG 9 meeting. The meeting will be virtual. The purpose of the meeting is to discuss Tullio's proposal (AI-87-2) for the implementation of the proposed General Principles. Note that the General Principles document is available in the WG 9 Repository, online here:

https://www.open-std.org/jtc1/sc22/wg9/n650_WG9_General_Principles.docx

and

https://www.open-std.org/jtc1/sc22/wg9/n650_WG9_General_Principles.pdf

The details for the June 2025 meeting will be decided at the December meeting.

AGENDA

Review of New Action Items

AI-88-1: Alejandro to send a short description of the work for updating TR 15942 to Tucker and Pat, for the sake of finding a candidate to take over the work.

AI-88-2: Pat to determine the status ("Stabilized" or not) for IS 15291 and IS 18009.

AI-88-3: Pat to send a note to Juan Antonio de la Puente to determine his wishes regarding HRG membership.

Final Consideration of Resolutions

Resolution 88-1: The meeting minutes of meeting #87 are approved.
Motion to approve: Richard W, Second: Tucker; approved unanimously.

Resolution 88-2: WG 9 approves the AI-22 AIs previously approved by the ARG in the recent ARG report.
Motion to approve: Tucker, Second: Jeff C; approved unanimously.

Resolution 88-3: WG 9 approves the draft ARG plan for submitting a new Corrigendum.
Motion to approve: Tucker, Second: Jeff C; approved unanimously.

Resolution 88-4:

ISO/IEC JTC 1/SC 22/WG 9 continues its Annex H Rapporteur Group (HRG) until the next plenary meeting and expresses its grateful appreciation to the Rapporteur and the members for their continuing service.

Joyce Tokar is continued as Rapporteur.

The membership of the HRG is designated to be: Steve Baird, John Barnes, Ben Brosgol, Alan Burns, Rod Chapman, Gary Dismukes, Bob Duff, Michael Gonzalez Harbour, Stephen Michell, Brad Moore, Miguel Pinho, Erhard Plödereder, Juan Antonio de la Puente, George Romanski, Jean-Pierre Rosen, S. Tucker Taft, Joyce Tokar, and Tullio Vardanega.

The Convenor of WG 9 is authorized to act for WG 9 between meetings in appointing additional members of the HRG. In doing so, he shall consult with the Rapporteur and the National Body or Liaison Organization nominating the member.

Rapporteurs are permitted to allow other individuals to observe the deliberations of the Rapporteur Group. The admission of observers and the extent of participation permitted to observers are at the discretion of the Rapporteur with the concurrence of the membership of the Rapporteur Group.
Motion to approve: Tucker, Second: Erhard; approved unanimously.

Resolution 88-5:

ISO/IEC JTC 1/SC 22/WG 9 continues its Ada Issues Rapporteur Group (ARG) until the next plenary meeting and expresses its grateful appreciation to the Rapporteur and the members for their continuing service.

Steve Baird is continued as Rapporteur.

The membership of the ARG is designated to be: Raphaël Amiard, Steve Baird, John Barnes, Randy Brukardt, Alan Burns, Arnaud Charlet, Jeff Cousins, Gary Dismukes, Claire Dross, Robert Duff, Edward Fish, Christoph Grein, Niklas Holsti, Pascal Leroy, Brad Moore, Alejandro Mosteo, Jean-Pierre Rosen, Justin Squirek, Tucker Taft, Tullio Vardanega, and Richard Wai.

The Convenor of WG 9 is authorized to act for WG 9 between meetings in appointing additional members of the ARG. In doing so, he shall consult with the Rapporteur and the National Body or Liaison Organization nominating the member.

Rapporteurs are permitted to allow other individuals to observe the deliberations of the Rapporteur Group. The admission of observers and the extent of participation permitted to observers are at the discretion of the Rapporteur with the concurrence of the membership of the Rapporteur Group.
Motion to approve: Tucker, Second: Richard W; approved unanimously.

Appreciation 88-6: ISO/IEC JTC 1/SC 22/WG 9 expresses its grateful appreciation to Alok Srivastava for acting as secretary for Meeting #88.

Appreciation 88-7: ISO/IEC JTC 1/SC 22/WG 9 expresses its grateful appreciation to the Convenor, Pat Rogers, for his support of WG 9.

AGENDA

RECESS

AGENDA

References

See http://www.open-std.org/jtc1/sc22/wg9/documents.htm for the WG 9 Document Log, including the ability to download the documents.