ISO/IEC JTC1/SC 22/WG 9 N636

Draft Minutes

Meeting #84 of ISO/IEC JTC 1/SC 22/WG 9

Tuesday, 18 October 2022 (virtual only)

Meeting #84 of WG 9 was held Tuesday, 18 October 2022. The meeting was strictly virtual. The meeting started at 16:35 UTC.

The detailed agenda was distributed as N635.

Remote access to the conference was available via WebEx.

AGENDA

Opening Orders, Meeting Convenor

Introductions and Reports

Liaison Reports and Introductions (as needed)

- Ada Europe: Dirk Craeynest
- SIGAda: Alok Srivastava
- WG 23:   Erhard Plödereder
- Fortran: Van Snyder

Convenor's Report

Project Editor Reports (as needed)

- IS 8652:   Randy Brukardt, Steve Baird
- IS 15291:   Bill Thomas and Greg Gicca
- TR 15942:   Alejandro Mosteo
- 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

Recess

Opening Orders

Call to Order

Appointment of Meeting Secretary

Welcome and Administrative Arrangements

Code of Conduct (https://www.iso.org/publication/PUB100397.html)

Approval of the [Agenda](#)

Approval of [N632](#): Meeting #83 Minutes.

Reports and Introductions

Austria – Johann Blieberger (HoD)

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)

USA – Tucker Taft (HoD)

[AGENDA](#)

Liaison Reports and Introductions

Ada Europe – Dirk Craeynest

Ada-Europe would like to inform the WG9 convener that its liaison delegation to Meeting #84, held online, on Tuesday 18 October 2022, will consist of Erhard Ploedereder and Dirk Craeynest.

As mentioned in our previous report, mid-June saw the return of an "in-person" Ada-Europe conference [1], held in Ghent, Belgium, with some remote participation.

> [1] http://www.ada-europe.org/conference2022

Preparations are ongoing for the next Ada-Europe conference (AEiC 2023): it will be held in Lisbon, Portugal, from 13 to 16 June, close to the city center. The conference web-site is online [2], the Call for Contributions will be added and distributed shortly.

SIGAda – Alok Srivastava / Tucker Taft (submitting)

Current SIGAda officers are:
- Tucker Taft, President
- Jerome Hugues, Vice-President
- Luis Miguel Pinho, Secretary-Treasurer
- Dirk Craeynest, International Representative

The term of this slate of officers was recently extended another two years, to June 30, 2025.

Luis Miguel Pinho has also taken over the Technical Editorship of Ada Letters, the periodic publication of SIGAda. SIGAda is in discussions with AdaEurope to merge their two publications, Ada Letters and the Ada User Journal, so they are published simultaneously with the same content. At some point they might end up with a common name, but that has not been decided.

SIGAda held its biennial HILT workshop on October 14th, in conjunction with the 2022 Automated Software Engineering conference (ASE'22) in Detroit, Michigan. The workshop included two keynotes and nine other presentations, all on the theme of "Languages and Tools Supporting a Rigorous Approach to Software Development." The keynote speakers were K. Rustan M. Leino who developed the Dafny formally verifiable language, and the Boogie verification framework, and Niko Matsakis, a member of the original Rust design team, who is now focused on creating a more formal definition of the intermediate representation used for Rust, namely "Mir" (he has dubbed his work "a-mir-formality"). Both Rustan and Leino now work for Amazon Web Services, as part of their Automated Reasoning group. A proceedings of the workshop will be published as an issue of Ada Letters later this year, while longer versions of several of the submitted papers will be part of a special issue of the International Journal on Software Tools for Technology Transfer (STTT), a Springer Journal, to be published in 2023.

At the workshop, SIGAda announced the winners of their two awards: Fabien Chouteau of AdaCore as the winner of the Robert Dewar Award for Outstanding Ada Community Contributions, and Luis Miguel Pinho of ISEP in Portugal as the winner of the SIGAda Distinguished Service Award.

SIGAda is considering starting a lecture series, where Ada experts or other high-integrity-language experts provide free webinars on a topic of interest to the Ada or wider HILT community.

WG 23 – Erhard Plödereder

Since my last report to WG9, WG23 has continued its schedule of weekly 3-hour conference calls, focusing on unfinished Parts of TR 24227 in turn. (My report to the June meeting of WG9 got lost in the process on my side.)

To my knowledge, ISO has still not reacted to the WG9 inquiry via SC22 to get pre-approval of free availability before turning WG23 documents officially into Standards. SC22 supports our view. The inquiry to ISO is now about two years old. Meanwhile some of the documents, while originally Technical Reports, have been converted to International Standards and stand ready for submission to ISO. Passing completed documents to ISO is on hold awaiting a resolution on the availability question; hence, if not already approved as Technical Reports, all documents are Working Documents from the ISO point of view.

The present status from the viewpoint of WG23 is as follows (with the proviso above):

- Part 1 as an International Standard is completed.
- The Ada Part as an International Standard is completed. Final comments were resolved before the last WG9 meeting.
- The SPARK Part as an International Standard is completed. Final comments were resolved before the last WG9 meeting.
- The C Part is approved by ISO as a Technical Report. The mostly editorial updates to turn it into an International standard are on hold.
- Technical work of WG23 on the Java Part is completed. However, it needs review by the Java community, which has not yet happened. Multiple avenues have been attempted to get the Java community involved in such a review.
- The Python Part is in the works. Particularly the concurrency issues are thorny, since Python relies on whatever mechanisms the underlying system provides.
- The C++ Part is making slow progress, as fine points of C++ semantics are being discussed.
- The Fortran Part has made considerable progress towards completion.

Work on the various Parts have shown some opportunities to improve the text of Part 1 in a future revision.

Fortran, INCITS/PL22.3 – Van Snyder

AGENDA

Convenor's Report

Activities since the Last Session

SC 22 approved our request for an "extension" to the schedule regarding the Ada standard, so that we have time to consider where next to go with the language (Resolution 22-04). We have up to three years available. Randy is retained as Project Editor.

Our official complaints to SC 22 regarding the CS Editors led to an action item for the SC 22 Chair, to bring issues specific to large programming language standards to the attention of the editors, and in general to push for a more suitable process.

I was reappointed as the WG 9 Convenor a three-year term starting January 2023.

Project Editor Reports (as needed)

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

As expected, ISO bounced the FDIS in late July, wanting a lot of reformatting this (and a few wording changes, found in AI12-0446-1). This was handled mostly by changing the formatting tool to do this reformatting while still allowing the RM format to be mostly unchanged.

These were almost all new comments, only a couple had anything to do with previous comments that were not handled to their satisfaction. This a general problem; other language standards are encountering similar problems (and don't have a formatting tool to change, leading to months of work). Complaints about this during the most recent US SC 22 tag meeting resulted in the US making a formal request [Editor's note: primarily drafted by Pat Rogers based in part on my suggestions] to the full SC 22 for a resolution requesting change at the JTC1 level. [The full SC 22 watered this down somewhat but did give the chair an action item to work on this problem.] While it is helpful to attempt to fix the underlying problem, it is unlikely to have any constructive results in time for this go-round.

These changes were completed in mid-September. In reviewing the result, Tucker noticed that the formatting changes had messed up some syntax and some examples. That required an extra iteration to fix all of the syntax problems and some of the worst example problems. A new version of the Ada Reference Manual was created, and then a new FDIS was submitted to Pat on September 23rd.

Based on the complaints from other editors at the US SC 22 meeting, and a subsequent discussion with David Keaton (the SC 22 chair), I expect that there will be a need for yet another iteration of the FDIS. (I want to be wrong about this!) It may take several more iterations before ISO actually accepts it.

The Editor asks for WG 9 approval of AI12-0446-1, as it has been included in the submitted FDIS.

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

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

There has been very little progress to date, and none is expected prior to January due to an unusually heavy workload. However, hopefully that situation should improve in January, at least until the next academic year. I suggest we wait until the next meeting in June, by which time I should either have results or will admit defeat.

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

No comments received; no actions needed.

TR 24718 (Guide for the Use of the Ravenscar Profile in High Integrity Systems) (Alan Burns)

Bill Ash (SC 22 Committee Manager) has informed us that making the document into a Technical Standard (TS) instead of a Technical Report will require almost no changes to the wording, other than anytime it refers to itself as a TR it must say TS (or "this document"). Then we'd just go

through the ISO process, most of which would be administrative. The change to a TS will require a "New work item Proposal" but that is not expected to be difficult because we already have the completed document.

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

TR 24772-6 Review of the SPARK Part by WG 9 subgroup (Steve Baird)

[AGENDA](#)

Rapporteur Group Reports (as needed)

Rapporteur Report ARG (Steve Baird)

Since the last report (June 2022), the ARG has met (electronically) twice, in June and September. The AIs approved before the June meeting were submitted for WG 9 review in Randy's message of Sept 6 2022 to the WG 9 list, and can be found online (along with other AIs) at https://www.ada-auth.org/AI22-SUMMARY.HTML.

The AIs listed in that message and up for approval today include:
```
 AI22-0002-1/03   2021-11-18 -- Nonoverridable aspects must be primitive
 AI22-0003-1/03   2022-01-14 -- Vestigial rule about inheritance of user-defined literal aspects
 AI22-0004-1/04   2022-02-03 -- Permissions of 4.1.4 and No_Implementation_Attributes
 AI22-0006-1/03   2022-01-14 -- Two-pass iteration for array aggregates
 AI22-0007-1/03   2022-01-19 -- Discriminant checks for aggregates might need to be done early
 AI22-0008-1/03   2022-02-03 -- Nominal subtype of a delta aggregate
 AI22-0010-1/04   2022-01-14 -- Predicates on private extensions
 AI22-0011-1/05   2022-01-19 -- Reduction expression issues
 AI22-0012-1/03   2022-01-14 -- Incompatibility for abstract type Pre'Class
 AI22-0013-2/02   2022-02-03 -- Pragma after a final label
 AI22-0014-1/02   2022-02-03 -- Predicates on inherited functions
 AI22-0016-1/02   2022-02-03 -- Newly constructed objects in a declare expression
 AI22-0018-1/05   2022-09-06 -- Easy fixes to Ada 2022
 AI22-0019-1/03   2023-06-24 -- Freezing of aspect specifications
 AI22-0020-1/02   2022-01-13 -- Order of elements in Aggregate aspect
 AI22-0021-1/04   2022-09-06 -- Aggregate aspect resolution should not be too smart
 AI22-0023-1/02   2022-02-04 -- Deferred presentation issues from the WG 9 review
 AI22-0027-1/04   2022-06-23 -- Primitive equality of a class-wide type
 AI22-0028-1/04   2022-06-14 -- Program_Error for unchecked union equality
 AI22-0029-1/04   2022-06-23 -- External_Tag collisions
 AI22-0030-1/02   2022-01-26 -- Array iterators of slices
 AI22-0031-1/04   2022-09-06 -- Issues with dynamic evaluation of container aggregates
 AI22-0032-1/04   2022-02-04 -- Abstract and class-wide container aggregates
 AI22-0035-1/03   2022-09-06 -- Add "not null" to some Ada.Strings subprograms
 AI22-0037-1/02   2022-06-23 -- Freezing of static expressions
 AI22-0038-1/04   2022-06-23 -- Introduction to 7.3.2
 AI22-0039-1/03   2022-06-14 -- Clarify 8.3(26/2)
 AI22-0041-1/03   2022-06-23 -- Deferred constant subtype compatibility
 AI22-0042-1/02   2022-06-23 -- Freezing rule needed for dispatching expression functions
 AI22-0044-1/02   2022-06-23 -- Aggregate discriminants that do not satisfy predicates
 AI22-0046-1/02   2022-06-23 -- Statically names misses some cases
```

AIs subsequently approved by the ARG (in particular, those approved at the September meeting) have not been submitted for WG 9 review yet; the review period would have been too short.

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.

To be discussed at the upcoming meeting.

Status: Open

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

Status: Open

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

Status: Open

AI-83-1: Tullio and Pat to investigate the amount of effort required to move TR 24718 to a standard.

Status: Done

AI-83-2: Pat to submit WG 9 request to SC 22 for a PWI for the next version of Ada.

Status: Done (approved)

AI-83-3: Tuck to explore potential for our next meeting to be with HILT in October. The AdaCore office in Boston is an alternative.

Status: Done (virtual; the Boston office was not an option)

AI-83-4: Pat to request that Alok Srivastava be listed in the WG 9 Global Directory as the SIG Ada liaison to WG 9. (Request to go to Bill Ash.)

Status: Done

AI-83-5: Tuck to email link to a Google Drive doc containing the DIS for WG 9's review.

Status: Done

Committee as a Whole

Unfinished Business

New Business

Scheduling of Future Meetings

Virtual/in-person meetings, with Ada Europe 2023, 13-16 June, and Oct/Nov 2023 (virtual), the date to be determined at the June meeting.

Review of New Action Items

AI-84-1: Tullio to explore the changes necessary to move TR 24718 to a TS, with help from Bill Ash.

AI-84-2: Pat to submit the NP to SC 22 for converting TR 24718 to a TS.

Final Consideration of Resolutions

Resolution 84-1: The meeting minutes of meeting #83 are approved.

Resolution 84-2: WG 9 approves the AI-22 AIs previously approved by the ARG in the recent ARG report, except for AI22-0029-1/04 (which goes back to the ARG for further consideration).

Resolution 84-3: The June 2023 meeting will be hybrid, in conjunction with Ada Europe, 13-16 June 2023. The Oct/Nov 2023 meeting will be virtual, exact date TBD in the June meeting.

Resolution 84-4: WG 9 approves AI12-0446-1.

Resolution 84-5: WG 9 resolves to submit a new work item proposal (NP) to SC 22 to convert TR 24718 to a Technical Standard.

Resolution 84-6:

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.

Resolution 84-7:

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, Pascal Leroy, Brad Moore, Jean-Pierre Rosen, Ed Schonberg, 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.

Resolution 84-8: ISO/IEC JTC 1/SC 22/WG 9 expresses its grateful appreciation to Alok Srivastava for acting as secretary for Meeting #84.

Resolution 84-9: 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

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.