

# ISO/IEC JTC1/SC 22/WG 9 N632

## Draft Minutes

### Meeting #83 of ISO/IEC JTC 1/SC 22/WG 9

Wednesday, 22 June 2022 (virtual only)

Meeting #83 of WG 9 was held Wednesday, 22 June 2022. The meeting was strictly virtual. The meeting started at 16:30 UTC.

The detailed agenda was distributed as [N631](#).

Remote access to the conference was available via WebEx.

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Recess

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## Opening Orders

Call to Order

Appointment of Meeting Secretary

Welcome and Administrative Arrangements

Code of Conduct

Approval of the [Agenda](#)

Approval of [N624](#): Meeting #82 Minutes.

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## 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)**

John Barnes' book "Programming in Ada 2012 With a Preview of Ada 2022" has been published by Cambridge University Press.

The UK NB has stopped giving any grant towards travel to international meetings.

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

**USA – Tucker Taft (HoD)**

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## **Liaison Reports and Introductions**

**Ada Europe – Dirk Craeynest**

Ada-Europe would like to inform the WG9 convenor that its liaison delegation to Meeting #83, held online, on Wednesday 22 June 2022, will consist of Dirk Craeynest.

Three years after the last "normal" conference in Warsaw, Poland, last week saw the return of the "in-person" Ada-Europe conference [1], held in Ghent, Belgium, with some remote participation.

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

For future conferences the Board is investigating multi-annual arrangements for logistic support. Planning is still ongoing, and decisions will be announced in due time.

Production of the Ada User Journal (AUJ) [2] is going on as planned. As reported earlier, collaboration with Ada Letters has continued, and the contents of the AUJ are now shared with Ada Letters with the intent to come to an effective merger of the two magazines in the near future.

[2] <http://www.ada-europe.org/auj>

The forthcoming completion of the 2022 revision of the Ada language specification is creating the opportunity to produce a corresponding Reference Manual book and the accompanying Rationale. Ada-Europe will assess the membership interest in this production and evaluate the financial viability of such undertaking, with a view to implementing it in the first quarter of the year 2023.

**SIGAda – Alok Srivastava**

**WG 23 – Erhard Plödereder**

**Fortran, INCITS/PL22.3 – Van Snyder**

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## **Convenor's Report**

### **Activities since the Last Session**

See the editor report for TR 24718.

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## **Project Editor Reports (as needed)**

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

After not hearing anything from ISO for a long time, in late February we found out that the standard had been approved (yea!) and that ISO had a number of comments on it (boo!).

The comments proved to be pretty much as bad as we expected (and discussed last time). In one way they were worse, asking us to remove all uses of "might" and "could" from the draft, as well as all uses of "may" and "should" from notes (along with a number of other words and phrases). We were given a target date of May 30th to deliver an FDIS.

We therefore put into motion the plan that was discussed at the last meeting, essentially reorganizing the FDIS as was requested but continuing to use the traditional organization for the Ada Reference Manual (which almost everyone will use). We also ended up developing and applying changes to over 300 paragraphs in the Ada Reference Manual. Many of these were relatively simple replacements of "may" or "might" with "can", but some were substantial reorganizations of the paragraph. (This latter mainly came from the newly banned phrase "need not", for which no replacement was provided -- rather any rules using so-called negative permissions needed to be rewritten positively or as some other kind of rule. This accounted for over 75 of the changed paragraphs.)

After some heroic efforts to identify and propose rewordings for all of those paragraphs (with a huge amount of help from Tucker Taft, I literally could not have done it without his help in finding ways to reword paragraphs), I managed to get them all ready for the ARG meeting on Can 5<sup>th</sup> (so-called since we are not allowed to use "May", noted by Ed Schonberg). The ARG reviewed the wording, proposed a few changes, and sent me off to apply the 300+ changes to the RM.

I finished that task last week and have now posted a new draft RM with all of those changes applied. An FDIS can be submitted at any time now, although I recommend allowing people to do a quick look at the latest RM draft to see if anyone finding any significant problems.

I hope this set of changes will be sufficient to placate the ISO reviewers, but if not I will be ready for another (hopefully much smaller) round of changes.

**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)

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

The document itself has been voted upon and approved by ISO. However, as you'll recall, the ISO editors rejected the fundamental form and layout of our first submission so we had to extensively revise the document. We did that and resubmitted it.

The ISO editors rejected that second submission, and required us to make numerous, but comparatively minor, wording and style changes. We did that and submitted the document a third time.

We thought all was well.

Apparently, the then-current SC 22 Committee Manager (CM) did not submit our updated document to the ISO editors. According to the current Committee Manager, Bill Ash, ISO believes nothing has happened since they rejected the second submission. This was all before Bill took over the CM role so we reconstructed the email trail and relayed the history to him.

Bill then submitted the document to the ISO editors, who have again rejected the document. The issue now is that a TR, under the new rules, may not contain guidance. Unfortunately, that is the precise purpose of the TR so the changes are pervasive, perhaps prohibitively so.

This is the same situation that WG 23 encountered. The primary authors/editors, Alan and Tullio, are aware of the options available that WG 23 discovered and are considering what to do next.

### **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)**

The WG 9 letter ballot (N628) passed with 11 in favor, 2 abstentions, and none against.

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### **Rapporteur Group Reports (as needed)**

#### **Rapporteur Report ARG (Steve Baird)**

Since the last report (September 2021), the ARG has met (electronically) three times. Several AIs have been approved; only the AI12 AIs are intended for inclusion in Ada 2022.

- AI12-0437-1/02 Presentation issues in Ada 202x submission
- AI12-0438-1/01 Rewording to remove "must"
- AI12-0439-1/01 Rerwordings to replace "might" or "could" with "can" or "may"
- AI12-0440-1/01 Rewording of notes to replace other words with "can"
- AI12-0441-1/02 Introductory wording changes
- AI12-0442-1/01 Rerwordings of notes
- AI12-0443-1/01 Convert glossary into a separate Terms and Definitions clause
- AI12-0444-1/02 Rerwordings to remove "need not"
- AI12-0445-1/02 Rerwordings of normative material
  
- AI22-0002-1/03 Nonoverridable aspects must be primitive
- AI22-0003-1/01 Vestigial rule about inheritance of user-defined literal aspects
- AI22-0004-1/03 Permissions of 4.1.4 and No\_Implementation\_Attributes
- AI22-0006-1/01 Two-pass iteration of array aggregates
- AI22-0007-1/01 Discriminant checks for aggregates might need to be done early
- AI22-0008-1/02 Nominal subtype of a delta aggregate
- AI22-0010-1/02 Predicates on private extensions
- AI22-0011-1/01 Reduction expression issues
- AI22-0012-1/01 Incompatibility with AI12-0412-1
- AI22-0013-2/01 Pragma after a final label
- AI22-0014-1/01 Predicates on inherited functions
- AI22-0016-1/01 Newly constructed objects in a declare expression
- AI22-0018-1/02 Easy fixes to Ada 2022
- AI22-0020-1/02 Order of elements in Aggregate aspect
- AI22-0021-1/02 Aggregate aspect resolution should not be too smart
- AI22-0023-1/01 Deferred presentation issues from the WG 9 review
- AI22-0028-1/03 Program\_Error for unchecked union equality
- AI22-0030-1/02 Array iterators of slices

AI22-0031-1/02 Issues with dynamic evaluation of container aggregates  
AI22-0032-1/02 Abstract and class-wide container aggregates  
AI22-0035-1/02 Add "not null" to some Ada.Strings subprograms  
AI22-0039-1/02 Clarify 8.3(26/2)

The AI12 AIs are intended to be semantics-preserving editorial changes. The ARG requests that these be approved as a group. If WG 9 were to reject these changes (which have already been incorporated into the FDIS due to ISO scheduling constraints), the status of the FDIS would become unclear. It is hoped and expected that this unwanted scenario will be avoided.

The AI22 AIs are hereby submitted to WG 9 for disposition. As usual, the AIs that have been approved by the ARG but not by WG 9 can be found at [http://www.ada-auth.org/ai-files/ARG\\_AI22.zip](http://www.ada-auth.org/ai-files/ARG_AI22.zip).

The editor (Randy) will make a separate report on status of the FDIS. However, it seems appropriate here to note that Randy (and Tuck) have done a \*lot\* of work to make this happen. Much of it involved very detailed (and tedious) wording changes, as well as deciding how to efficiently satisfy the differing requirements of the various parties involved. Bravo, and thanks!

Now that the ARG's work on Ada 2022 is largely over, the ARG has also been devoting effort to improving the web infrastructure used for getting input from the user community and for creating and accessing AIs.

The User Community Input working group, led by Richard Wai, has set up the [github.com/Ada-Rapporteur-Group/User-Community-Input](https://github.com/Ada-Rapporteur-Group/User-Community-Input) site; this is intended to provide a framework for feature proposals and Ada language design discussions. This is available for use today. Users can create language study groups to focus on a given topic; each such group gets a Google folder.

Once a proposal reaches the point where an AI is appropriate, another new site ([arg.adaic.org](http://arg.adaic.org), set up by Tuck) comes into play. This is intended to eventually replace much of the current [www.ada-auth.org](http://www.ada-auth.org) site. AIs are stored as Google docs, as opposed to as ASCII text files, and the format of AIs has been reviewed and updated. This also has the advantage of providing cloud-based access to AIs, as opposed to relying on the computers in Randy's office in Madison. Editing of existing AIs is limited to ARG members.

Thanks to Richard, Randy, and Tuck for their efforts in making all of this happen.

ARG members have also been working on ACATS Tests for Ada 2022.

## Rapporteur Report HRG

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## 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-82-1:** Steve to submit the final SPARK Part document to WG 9 to vote on.

Status: Done, as reported above.

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

Status: Open

**AI-82-3:** Tucker to determine specific date for HILT.

Status: Done. The 2022 HILT Workshop will be on Friday, October 14th, in Ann Arbor, Michigan, in conjunction with the 2022 Automated Software Engineering conference (ASE'22).

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## Committee as a Whole

We need a resolution confirming Alok Srivastava as the new liaison from SIGAda.

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## Unfinished Business

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## New Business

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## Scheduling of Future Meetings

Virtual/in-person meetings, October 14, 2022 with HILT (Ann Arbor) ?, and with Ada Europe 2023 at a date TBD in June.

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## Review of New Action Items

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

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

**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.

**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.)

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

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### **Final Consideration of Resolutions**

**Resolution 83-1:** The meeting minutes of meeting #82 are approved.

**Resolution 83-2:** The 2023 June meeting will be with Ada Europe, specific date TBD.

**Resolution 83-3:** WG 9 approves the AI-12 AIs previously approved by the ARG including those in the recent ARG report.

**Resolution 83-4:** WG 9 will review the updated DIS distributed to WG 9 by Randy. The intent is to find any major editorial or structural errors or omissions, but not technical issues. The review will commence today and finish CBD 5 July 2022.

**Resolution 83-5:** Tullio and Pat will review the effort to convert the current Ravenscar guidance TR into a standard.

**Resolution 83-6:** WG 9 will request a PWI for the Ada standard from SC 22.

**Resolution 83-7:** Alok Srivastava is confirmed as the new liaison from SIGAda.

**Resolution 83-8:**

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 83-9:**

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 83-10:** ISO/IEC JTC 1/SC 22/WG 9 expresses its grateful appreciation to Alok Srivastava for acting as secretary for Meeting #83.

**Resolution 83-11:** ISO/IEC JTC 1/SC 22/WG 9 expresses its grateful appreciation to the Convenor, Pat Rogers, for his support of WG 9.

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**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.