ISO/IEC JTC 1/SC 22/WG 9 N660

Convenor's Report, 2024-2025, ISO/IEC JTC 1/SC 22/WG 9 (Ada)

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Business Plan for JTC 1/SC 22/WG 9 (Ada)

Period Covered:

1 July 2024 - 1 July 2025

Submitted By:

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1 MANAGEMENT SUMMARY

The focus of WG 9 over the year was to conduct the various items of work, with the following priorities:

1. (Highest priority) Respond to Defect Reports submitted on ISO/IEC 8652.
2. Develop a Technical Corrigendum for ISO/IEC 8652:2023
3. Develop Technical Reports or Standards improving the Ada libraries.
4. Determine long-term plans for the WG.
5. Move WG documents to ISO Documents.

1.1 JTC 1/SC 22/WG 9 Statement of Scope

JTC 1/SC 22 WG 9 is responsible for the development and coordination of ISO standards and Technical Reports for the Programming Language Ada.

1.2 Project Report

1.2.1 Completed Projects

ISO/IEC TS 24718:2025 (Ed 1), Guidance for the use of the Ada Ravenscar Profile in high integrity systems.

Edition 1 of this TS was published this year. (This TS had been a TR covering earlier editions of the Ada standard.)

1.2.2 Projects Underway

Update to TR 15942:2000 Guidance for the use of the Ada Programming Language in High Integrity Systems.

After multiple years, the volunteer editor for this project has made no progress. We are looking for a replacement. The problem is that the editor requires deep familiarity with the language as well as high-integrity systems domain expertise. People meeting those requirements tend to be fully allocated elsewhere.

1.2.3 Projects Withdrawn

None in this period.

1.2.4 Standards and Technical Reports Withdrawn

None in this period.

1.2.5 Cooperation and Competition

To date there have been two major professional societies in this area: Ada-Europe and the Special Interest Group on Ada (SIGAda) of the Association for Computing Machinery (ACM). The semi-annual meetings of WG 9 are typically scheduled to coincide with the conferences and workshops organized by these two groups. Officials of both organizations are active participants in the work of WG 9. Both groups have the status of Category C liaison with WG 9.

However, as described in section 5.2.1, ACM SIGAda was merged with ACM SIGPLAN to be SIGPLAN-HILT so now the liaison is with that organization.

There is one major vendor consortium, the Ada Resource Association (ARA). Informal liaison with ARA is maintained via the US TAG.

WG 9 has designated a liaison to SC 22/WG 23, Erhard Plödereder, former president of Ada-Europe, and has invited WG 23 to collocate meetings with WG 9.

As described in section 5.2.4, WG 9 has had a liaison with INCITS/Fortran (formerly INCITS PL/22.3), for many years. However, the person holding that position has retired so we are working with WG 5 to identify a replacement.

2 PERIOD REVIEW

2.1 Market Requirements

Ada is the language of choice for important parts of the real-time, embedded systems community as well as aerospace and defense segments. For example, Ada is used extensively in commercial airplanes and regional airspace control. Ada is also being used in other market segments, such as railway and banking. WG 9 has completed the update to the language standard by means of a Revision to meet the needs of the current market.

2.2 Achievements

1) Worked on Defect Reports on ISO/IEC 8652.
2) As mentioned above, we successfully published ISO/IEC AWI TS 24718 (Ed 1), *Guidance for the use of the Ada Ravenscar Profile in high integrity systems*.
3) Resolved to submit Technical Corrigendum 1 for ISO/IEC 8652:2023 (Ada).
4) Resolved to develop the next edition of ISO/IEC 8652.

5) Began collecting community inputs for high-level technical directions for the next edition of ISO/IEC 8652, the Ada standard.

2.3 Resources

Given the guidance provided in the ISO directives, National Bodies designate experts to participate in WG 9. WG 9 has representatives from Canada, Finland, Italy, Spain, Switzerland, Portugal, UK, and US.

Implementation of the Category C Liaisons with Ada-Europe and ACM SIGAda has broadened the base of technical review and support for language standardization. Similar results have occurred due to the liaison with the Fortran Working Group.

All new work item suggestions are screened by the requirement for active support from five national bodies. This has worked well, resulting in explicit commitments from national bodies supporting a possible project.

WG 9 uses Rapporteur Groups to perform the drafting of its technical documents. This allows WG 9 itself to meet only twice per year – for approximately one-half-day at each meeting. When appropriate, WG 9 delegates initial drafting to members working with Rapporteur Groups. (For example, the US contributed the draft of the revision to ISO/IEC 8652.)

WG 9 continues to use Web conferencing capabilities to make access to our meetings available to those members that are unable to attend our meetings in person.

2.4 Environmental Issues

(Not applicable)

2.5 Participation Metrics

Seven to eight national bodies regularly send designated experts to participate in the work of WG 9; most of them regularly attend meetings. Each of the experts typically vote at the WG 9 level. Those that are P-members of SC 22 typically vote at that level.

3 FOCUS NEXT WORK PERIOD

3.1 Deliverables

The following deliverables are anticipated during the next 12 months:

- Resolutions to Ada Defect Reports, as they are received.
- Publication of Technical Corrigendum 1 for the Ada standard.
- A Technical Directions document for the next edition of the Ada standard.
- Once the public access issues are resolved we will begin moving our documents to the ISO Documents online repository.

3.2 Strategies

We delegate technical work to the Rapporteur Groups. We collaborate with professional societies via liaison relationships. We achieve full consensus within Rapporteur Groups prior to initiating formal balloting.

3.2.1 Risks

- Unexpected technical comment at the SC 22 level has the potential to delay the work of WG 9. WG 9 mitigates this risk by providing mechanisms for full treatment of NB technical concerns at the RG and WG level. Although we observe all requirements of the directives, we view SC 22 and JTC1 level balloting as approval of documents that have already been completed.
- As with many Working Groups, funding continues to be an issue, mainly affecting travel, but also affecting labor hours. In particular, one company had been the funding source for the Ada language standard's Project Editor, as well as several other members. As a result, we have identified a new funding source, the Ada User Society (https://ada-user.org/), which is a global spin-off of Ada Europe.

3.2.2 Opportunities

With the increased interest and concern with software and systems safety, WG 9 intends to continue working with WG 23 on the development of guidance for the prevention of software vulnerabilities when new vulnerabilities are identified.

3.3 Work Program Priorities

- (Highest) Address Ada Defect Reports.
- Develop Technical Reports or Standards improving the Ada libraries.
- Identify the technical directions for the Ada language.

4 Other Items

4.1 Possible SC 22 Plenary Actions Related to WG 9

WG 9 requests that JTC 1/SC 22 approve the addition to its program of work the revision of ISO/IEC 8652-2023 Information technology — Programming languages — Ada.

The scope will not be expanded.

Project Editor: Randy Brukardt (US)
Project plan: 36 months
CD Target date: 2026-12-01
DIS ballot target: 2027-08-01
Target publication date: 2028-08-01 (the default timeframe)

OSD will not be used as the draft is created in its own source file.

4.2 Convenor Term Expiration

The current convenor's term expires at the end of this calendar year, and the current holder of that position will be fully retiring at that same time. Therefore, we have identified a replacement, and his National Body (Italy) has submitted his name to SC 22 for consideration.

5 ADMINISTRATIVE INFORMATION

5.1 Project Editors

5.1.1 IS 8652 (Information Technology--Programming Languages—Ada)

Randy Brukardt

5.1.2 IS 15291 (ASIS Standard)

Bill Thomas and Greg Gicca

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

Alejandro Mosteo (but a replacement is intended)

5.1.4 ISO/IEC 18009 (Conformity Assessment of an Ada Language Processor)

Erhard Plödereder

5.1.5 TS 24718 (Guide for the Use of the Ravenscar Profile in High Integrity Systems)

Alan Burns and Tullio Vardanega

5.1.6 ISO/IEC TR 24772-2:201X(E) (Information Technology — Programming languages — Guidance to avoiding vulnerabilities in programming languages – Vulnerability descriptions for the programming language Ada)

Joyce Tokar

5.2 WG 9 Liaisons

5.2.1 Category C Liaison with SIGPLAN-HILT

SIGAda was a Special Interest Group of the Association for Computing Machinery (ACM). WG 9 has maintained this liaison for many, many years. However, SIGAda has been merged with ACM SIGPLAN (Special Interest Group on Programming Languages), specifically the SIGPLAN-HILT Technical Committee – SIGPLAN High Integrity Language Technology Technical Committee. Therefore, the liaison is with SIGPLAN-HILT instead.

5.2.2 Category C Liaison with Ada-Europe

Ada-Europe is an international organization, set up to promote the use and knowledge of Ada, and to promote its introduction into industrial, academic, and research establishments. It aims to spread the use and the knowledge of Ada and to promote its introduction into academic and

research establishments. Above all, Ada-Europe intends to represent European interests in Ada and Ada-related matters.

In its current form, Ada-Europe was established in 1988. Because there is no European legal framework to govern such organizations, it was established according to Belgian Law. Currently, national member organizations are: Ada-Belgium, Ada-Denmark, Ada-Deutschland, Ada-France, Ada-Spain, Ada in Sweden, and Ada in Switzerland. Individual members of these organizations can become indirect members of Ada-Europe. Direct membership is available to individuals in countries without national member organization.

The best-known of Ada-Europe's activities is its annual conference, first held in 1994, which provides an international forum for researchers and users of Ada and other technologies geared towards reliable systems (see http://www.ada-europe.org/conf/ae). Ada-Europe publishes the Ada User Journal quarterly magazine to keep its members and others abreast of the latest developments related to Ada.

In the past, Ada-Europe members have played an important, but individual, role in the standardization work of SC 22/WG 9. For example, ISO/IEC 18009 and ISO/IEC TR 24772-1 and -2 incorporate technical material provided by Ada-Europe members.

5.2.3 Liaison with WG 23

The main work of WG 23 is to identify vulnerabilities in programming languages. For language addressed, the WG focuses on how those vulnerabilities are to be handled specifically for that language. WG 9 maintains a liaison relationship with WG 23 to stay apprised of the findings of WG 23 and how they apply to Ada.

5.2.4 Liaison with INCITS/Fortran

The main work of INCITS/Fortran is on the programming language Fortran. The liaison relationship with WG 9 is to ensure that the content of the Ada Standard section on interfacing with Fortran is correct and to coordinate efforts on parallel programming.

The INCITS/Fortran person currently in the liaison role has retired but we expect to have a replacement soon.

5.3 Meetings of WG 9

5.3.1 Future Meetings

- Meeting #91 will be held 8 October 2025. The meeting will be virtual.
- Meeting #92 will be held in June 2026 (exact date TBD), in conjunction with the Ada Europe 2026 (AEiC 2026) conference in Vasteras, Sweden. The meeting will be hybrid.

5.3.2 Recent Meetings

- Meeting #90 of WG 9 held 9 June 2025, in conjunction with the Ada Europe (AEiC 2025) Conference in Paris.
- Meeting #89 of WG 9 held (virtually) 4 December 2024.
- Meeting #88 of WG 9 held (virtually) 10 October 2024.
- Meeting #87 of WG 9 held 10 June 2024, in conjunction with the 28th International Conference on Reliable Software Technologies Ada-Europe 2024 in Barcelona Spain.
- Meeting #86 of WG 9 held (virtually) 12 October 2023.

- Meeting #85 of WG 9 held 13 June 2023 in conjunction with the 27th International Conference on Reliable Software Technologies Ada-Europe 2023, in Lisbon, Portugal.
- Meeting #84 of WG 9 held (virtually) 18 October 2022.
- Meeting #83 of WG 9 held (virtually) 22 June 2022.
- Meeting #82 of WG 9 held (virtually) 20 September 2021.
- Meeting #81 of WG 9 held (virtually) Tuesday, 29 June 2021.
- Meeting #80 of WG 9 held (virtually) Monday, 19 April 2021.
- Meeting #79 of WG 9 held (virtually) Monday, 11 January 2021.
- Meeting #78 of WG 9 held (virtually) Friday 12 June 2020.
- Meeting #77 of WG 9 held Saturday, 5 Oct 2019 in Lexington, Massachusetts.
- Meeting #76 of WG 9, held in conjunction with the 24th International Conference on Reliable Software Technologies Ada-Europe 2019, the morning of Friday, 14 June 2019 in Warsaw, Poland.