# ISO/IEC JTC 1/SC 22/WG 9 N 545

## Convenor's Report, 2013-14, 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 2013-1 July 2014

## 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. The work of WG 9 was conducted with the following priorities in its work:

1.   (highest priority) Respond to Defect Reports and/or Ada Issues on ISO/IEC 8652;
2.   Moving materials to Live Link
3.   Develop Technical Reports or Standards improving the Ada libraries;
4.   Consider proposals for extending the language;
5.   Develop an Ada and SPARK Annex to the WG 23: Vulnerabilities Guidelines Type III Technical Report;

### 1.2 JTC 1/SC 22/WG 9 Statement of Scope

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

### 1.3 Project Report

#### *1.3.1 Completed Projects*
**ISO/IEC 8652:2012 *(Ed 3), Information technology – Programming languages – Ada*.**
The new edition of the Ada Standard includes the content of the Amendment ISO/IEC 8652:1995 and the Technical Corrigendum ISO/IEC 8652:1995. The ISO/IEC 8652:2012 Standard was published in December 2012 and is known as Ada 2012.

### 22.10.01 -- IS 8652:1995 Programming Languages: Ada and ISO/IEC 8652:1995/Cor.1:2001 Technical Corrigendum

The Standard was published in 1995 and a Technical Corrigendum was published in 2001. WG 9 determined that the best strategy for updating the standard was to develop an Amendment. SC 22 approved the project subdivision in N3310.

### 22.10.01.01 -- IS 8652:1995 Programming Languages: Ada and ISO/IEC 8652:1995/Amendments to ISO/IEC 8652:1995

Subdivision of project 1.22.10.01 approved per JTC 1 N6567. N 4051- FPDAM ballot passed. Published 9 March 2007 as Ada 2005.

### 22.15291-- IS 15291:1999 Ada Semantic Interface Specification (ASIS)

WG 9 voted in June 2003 to confirm this standard upon its reaching the five-year review point. SC 22 endorsed the request in its 2003 plenary meeting. The Status shown on the ISO web site is 90.93 (confirmed).

### 22.15942 -- TR 15942:2000 Guidance for the use of the Ada Programming Language in High Integrity Systems

WG 9 has requested that this Type 3 Technical Report be made freely available on an appropriate web site. The request was approved by SC 22 and JTC 1 and was implemented.

### 22.18009 -- IS 18009:1999, Ada Conformity Assessment

WG 9 voted in June 2003 to confirm this standard upon its reaching the five-year review point. SC 22 endorsed the request in its 2003 plenary meeting. The status is shown on the ISO web site as 90.93 (confirmed).

### 22.24718 -- TR 24718:2005, Guide for the Use of the Ada Ravenscar Profile in High Integrity Systems

A Type 3 Technical Report, ISO/IEC TR 24718, Guide for the use of the Ada Ravenscar Profile in high integrity systems, was completed during 2005. The status shown on the ISO web site is 60.60 (published). Although the normal process was used to approve the report, the document is an adoption of a report developed by the University of York, UK. Both the University of York and the UK National Body have agreed to cooperate with JTC1 if any revisions are made to the report.

On March 7, 2005, JTC 1 recommended that the Technical Report should be made freely available. This request was approved by SC 22 and JTC 1 and was implemented.

## 1.3.2 Projects Underway

**Maintenance of ISO/IEC 8652:2012 (Ed 3), Information technology – Programming languages – Ada.**

**Update to the Ada Conformance Test Suite**

**Maintenance of ISO/IEC 14519:2001, Ada Binding to POSIX**

**Update to the Ada Annex to WG 23 Technical Report on Vulnerabilities:** Provided an Ada Annex to WG23 for inclusion in ISO/IEC DTR 24772: Technical Report on Vulnerabilities.

**Update to the SPARK Annex to WG 23 Technical Report on Vulnerabilities:** Provided a SPARK Annex to WG23 for inclusion in ISO/IEC DTR 24772: Technical Report on Vulnerabilities.

### 1.3.3 Projects Withdrawn

**Revision of the ASIS standard, ISO/IEC 15291**: CD N 4456 for ISO/IEC 15291 has been withdrawn, Information technology – Programming languages – Ada Semantic Interface Specification (ASIS), as more work is needed to update this document in alignment with the update to the Ada Standard.

### 1.3.4 Standards and Technical Reports Withdrawn

None

### 1.3.5 Cooperation and Competition

There are 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 scheduled to coincide with the major conferences 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.

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

As requested by SC 22, WG 9 has designated a liaison to SC 22/WG 23, Erhard Ploedereder (Germany), former president of Ada-Europe, and has invited WG 23 to collocate meetings with WG 9.

WG 9 has a liaison with FORTRAN, INCITS PL/22.3, Van Snyder (NASA) is the representative from INCITS PL/22.3.

## 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. Ada is also being used in other market segments, such as railway and banking. WG 9 has completed the update the language standard by means of a Revision to meet the needs of the current market.

Over the past few years, WG 9 has supported the work of WG 23 in developing Ada and SPARK Annexes to the WG 23 Technical Report on Vulnerabilities.  Last year, SC 22 appointed a new convenor and work on the update to the Technical Report on Vulnerabilities has not been progressing.  WG 9 is very interested in the continuation of the work on the Technical Report on Vulnerabilities and is preparing to produce an update to the Ada and SPARK Annexes to this report.

## 2.2 Achievements

- Work on to Defect Reports and/or Ada Issues on ISO/IEC 8652

## 2.3 Resources

Given the guidance provided in the ISO directives, National Bodies are designating experts to participate in WG 9. WG 9 has representatives from Canada, Italy, Spain, Switzerland, Portugal, UK, and US. Recently, Germany's support has been intermittent. Belgium is still working on resuming their support. France withdrew their support for 2014, and expects to resume in 2015.

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 national bodies working with Rapporteur Groups. (For example, the US contributed the draft of the revision to ISO/IEC 8652.)

WG 9 has been using 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

Eight to nine national bodies regularly send representatives to participate in the work of WG 9; most of them regularly attend meetings. Each of the NBs typically votes 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:

- Continue to address Ada Issues
- Update to the Ada and SPARK Annexes to the WG 23 Technical Report on Vulnerabilities
- Move WG 9 materials to Live Link

## 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

WG 9 has a concern regarding the membership rules that are being imposed by ISO impacting the level of participation in the WG.

WG 9 is distressed about the limited progress on the work on the update to the Technical Report on Vulnerabilities from WG 23. As mentioned earlier, WG 9 would like to see this work actively supported as it flows directly into the needs of WG 9's market place.

### *3.2.2 Opportunities*

National body participation in WG 9 is stable.

## 3.3 Work Program Priorities

The emphasis of WG 9 will be shifting from the development of a Revision for ISO/IEC 8652 toward meeting the needs of our community. Our priorities are as follows:

- (Highest) Address Ada Issues
- Update to the Ada and SPARK Annexes to the WG 23 Technical Report on Vulnerabilities
- Develop Technical Reports or Standards improving the Ada libraries.
- Consider proposals for extending the language;
- Revision of ISO/IEC 14519:2001, Ada Binding to POSIX.

## 4. Other Items

## 4.1 Possible SC 22 Plenary Actions Related to WG 9
Nothing to request.

## 5. ADMINISTRATIVE INFORMATION

## 5.1 Project Editors

**IS 8652 (Information Technology--Programming Languages—Ada)**
Jeff Cousins, Edmond Schonberg, and Randy Brukardt

**IS 15291 (ASIS Standard)**
Bill Thomas and Greg Gicca

**TR 15942 (Guidance for the Use of Ada in High Integrity Systems)**
Brian Wichmann

**ISO/IEC 18009 (Conformity Assessment of an Ada Language Processor)**
Erhard Ploedereder

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

## 5.2 WG 9 Liaisons

WG 9 has two Category C liaison relationships.

### 5.2.1 Category C Liaison with ACM SIGAda

SIGAda is a Special Interest Group of the Association for Computing Machinery (ACM). Its 80,000 members make ACM one of the world's premier technical professional organizations related to computing.

With over 560 paid members and access to an additional 900 members of the Ada community, SIGAda is one of the world's largest organizations serving the needs of professionals interested in the Ada language. SIGAda is a powerful resource for the software community's ongoing technical and scientific activities concerning the usage, education, standardization, and implementations of the Ada language and related Ada technologies. Its annual international conference is a major event, not only for Ada specialists, but also for all enthusiasts in modern software topics such as software engineering, process improvement, CASE, object-oriented methods, and software education. It publishes a journal providing news and technical articles important to the Ada community quarterly.

In the past, SIGAda members have played an important, but individual, role in the standardization work of SC 22/WG 9. For example, ISO/IEC 15291 is largely based upon technical material originally developed by individuals acting under the auspices of SIGAda. SIGAda has also played an important role for Ada language improvements in the areas of performance, real-time, numerics, and distribution.

### 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. As 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. At the moment, Ada-Europe has about 350 members overall.

The best-known of Ada-Europe's activities is its annual conference, now in its 22nd year, which provides the European forum for researchers and users of Ada and other technologies geared towards reliable systems. 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 incorporates technical material provided by Ada-Europe members.

### 5.2.3 Liaison with WG 23

The main work of the WG 23 is to identify vulnerabilities in general. Each language WG is to worry about 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 Fortran* **INCITS PL/22.3**

The main work of Fortran INCITS PL/22.3 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.

## 5.3 Meetings of WG 9

### 5.3.1 Future Meetings

- Meeting #67 will be held in conjunction with [High Integrity Language Technology 2014 (HILT 2014)](#), on the morning of 20 Oct 2014 (07:00-10:00 PDT) in Portland OR, USA.

- Meeting #68 of WG9 will be held in conjunction with the [20th International Conference on Reliable Software Technologies Ada-Europe 2015](#), Friday morning 26 June 2015 in Madrid, Spain.

### 5.3.2 Recent Meetings

- Meeting #58, in conjunction with the Ada-Europe conference, Friday morning, 18 June 2010, Valencia, Spain.
- Meeting #59 in conjunction with the [2010 SIGAda conference](#) on the afternoon of Thursday 28 October 2010 in Fairfax, VA.
- Meeting #60 in conjunction with the [2011 Ada-Europe conference](#), Friday morning, 24 June 2011 in Edinburgh, Scotland.
- Meeting #61 in conjunction with the [2011 SIGAda conference](#) on the afternoon of Thursday, 10 Nov 2011 in the Denver, CO, USA.
- Meeting #62 in conjunction with the [2012 Ada-Europe conference](#), Friday morning, 15 June 2012 in Stockholm, Sweden.
- Meeting #63 in conjunction with the [High Integrity Language Technology ACM SIGAda's Annual International Conference](#) on the afternoon of Thursday, 6 Dec 2012 in the Boston, MA, USA.
- Meeting #64 in conjunction with the [18th International Conference on Reliable Software Technologies Ada-Europe 2013](#)**,** Friday morning, 14 June 2013 in Berlin, Germany.
- Meeting #65, in conjunction with [High Integrity Language Technology 2013 (HILT 2013)](#), Friday morning 15 November 2013 in Pittsburgh, PA, USA.
- Meeting #66 was conducted as a teleconference Friday morning 27 June 2014.  Some attendees were collocated with the [19th International Conference on Reliable Software Technologies Ada-Europe 2014](#).