# ISO/IEC JTC1/SC22/WG9 N544

### Meeting Minutes

*Revision 1 27 June 2014*

### Meeting #66 of ISO/IEC JTC1/SC22/WG9[[1]](#footnote-1)

**Friday 27 June 2014**

In accordance with Resolution 65-4 and the change of venue announcement ([N542](#N542)), meeting #66 was conducted as a teleconference. For those delegates that are attended the [19th International Conference on Reliable Software Technologies Ada-Europe 2014](http://www.ada-europe.org/conference2014), a meeting room was available to join the teleconference. The meeting started at 09:23 on Friday 27 June 2014 (Paris time).

The detailed agenda for this meeting were circulated as [N543](#N543).

### AGENDA

[Opening Orders](#Opening)

[National Body Reports and Introductions](#_National_Body_Reports)

[Liaison Reports and Introductions](#LiasonReports)

* Ada Europe: Dirk Craeynest
* SIGAda: Rick Sward
* SC 23/OWGV: Erhard Ploedereder
* Fortran, INCITS/PL22.3: Van Snyder

[Convener's Report](#Convener)

[Project Editor Reports (as needed)](#PrjEd)

* IS 8652: Ed Schonberg and Randy Brukardt
* IS 15291: Bill Thomas and Greg Gicca
* TR 15942: Brian Wichmann
* IS 18009: Erhard Ploedereder
* TR 24718: Alan Burns

[Rapporteur Group Reports (as needed)](#RapRpt)

* Report of Ada Rapporteur Group: Jeff Cousins, Chair
* Report of Annex H Rapporteur Group: Alan Burns, Chair

[Review of Open Action Items and Unimplemented Resolutions](#OpenAIs)

[Committee as a Whole](#CAAW)

* Update to Ada Annex and SPARK Annex to the WG 23 Technical Report on Vulnerabilities (Burns, Ploedereder)
* Corrigendum for Ada 2012 (Brukardt, Cousins, Taft, Tokar)
* Meeting locations (Tokar)

[Unfinished Business](#UBiz)

[New Business](#NBiz)

[Scheduling of Future Meetings](#NextMeet)

[Administrative Actions](#Admin)

[Review of New Action Items](#NewActions)

[Review of New Resolutions](#NewResolutions)

[Final Consideration of Resolutions](#final)

[Recess](#recess)

### Opening Orders, Joyce Tokar, Meeting Convenor

* Call to Order
* Appointment of Meeting Secretary
* Approval of [Agenda](#Agenda)
* Welcome and Administrative Arrangements - ECE has provided the meeting room for the attendees attending
* Approval of [N539](#N539): Meeting #65 Minutes – Resolution [66-1](#r1)

[AGENDA](#A1)

### National Body Reports

#### Attendees:

##### National Body Representatives:

|  |  |  |
| --- | --- | --- |
| Canada  | Brad Moore (HOD), Stephen Michell  | [Report](#Canada) |
| Germany | *TBA* (HOD)  | No Report |
| Italy | Tullio Vardanega (HOD) | No Report |
| Portugal | Miguel Pinho (HOD) | [Report](#Portugal) |
| Spain | Juan Antonio de la Puente (HOD) | [Report](#Spain) |
| Switzerland | Patrick Gautschi (HOD)  | No Report |
| UK | Jeff Cousins (HOD), John Barnes | [Report](#UK) |
| USA | *TBD* (HOD), Randy Brukardt, S. Tucker Taft | No Report |

**Canada**

Canada is involved in exploring possibilities for improved parallelism support in ISO/IEC 652:2012. A study group including Luís Miguel Pinho from Portugal, Tucker Taft from the United States, Stephen Michell and Brad Moore from Canada were asked to see if a binding to the existing OpenMP standard would be feasible.

Our initial investigation found that official involvement in the OpenMP standard would be cost prohibitive. Such involvement would require significant vendor support, which would be difficult to justify in the current market without a high level of customer demand for such capabilities.
An unofficial binding could be created, but maintaining such a binding would be a challenge since the OpenMP standard itself is evolving and would be a moving target.

The interface to OpenMP in other languages involves annotating sequential code with compiler directives similar to pragmas in Ada. Applying this approach to provide a standardized, portable binding to OpenMP in Ada would likely require defining similar new pragmas and aspects in Ada, which would be difficult with only unofficial involvement with the evolving OpenMP standard. A vendor of course is free to provide an implementation defined binding to OpenMP, but such as binding would be non-portable and outside the scope of any standardization effort.

It is the belief of the study group that if support for parallelism is to be standardized in Ada, it should strengthen or at least maintain Ada's focus on program correctness. The compiler should be able to reasonably detect data races and other problems that can lead to erroneous execution.
The design of OpenMP and approaches currently taken in other languages have a different focus that is more about giving the programmer full control of the parallelism while less concerned about having the compiler detect potential problems with the programmer's code.

 We belief a better path for the Ada standard would be to eventually move towards capabilities that facilitate generation of implicit parallelism while strengthening capabilities for statically detecting and eliminating data races and other problems with the programmers code, regardless whether parallelism is desired or not. We believe that some additional syntax would provide better guidance to the compiler when parallelism is desired but implicit parallelism is not feasible.

**Portugal**

Although I will be in Paris I will not be able to participate in the WG9 meeting, as I am chairing a workshop on Friday. This is an unfortunate coincidence.

There is no new information concerning the restructuring of the standardization activities in Portugal (or associated fees). National work related to WG9 continues to be in direct connection with the NB. Portugal is a P member of SC22, but AFAIK WG9 is the only WG active in the SC.

The main focus of the technical work being developed has been in the parallelism extensions being proposed for Ada, which I hope is discussed at the WG9 and ARG meetings in Paris.

**Spain**

Ada Spain will distribute the Ada 2012 Reference Manual in print to all its members.

A meeting of the national WG group was held on May 29. The group supports the approval of the AIs submitted to the meeting.

Had a local meeting of SC 22 in Spain where there was considerable discussion on the status of WG23. The meeting was mostly influenced by the C++ community which are not interested in the continuation of WG23. Spain will abstain if there is a vote on the continuation of WG23 at the SC level.

The Spanish delegation for this meeting of WG 9 is Juan de la Puente (HOD).

### Switzerland

No Report

### UK

The UK panel now conducts its business by e-mail.

The UK delegation is Jeff Cousins (HOD), John Barnes and Alan Burns for this meeting of WG 9.

John Barnes’ Ada 2012 Rationale was published, and publication of his new edition of Programming in Ada is imminent. Jeff Cousins reviewed and contributed to the chapter on Containers.

**USA**

No Report

[AGENDA](#A2)

### Liaison Reports

**Ada-Europe Liaison Report:**

**Ada-Europe Liaison Representative, Dirk Craeynest**

Ada-Europe would like to inform the WG9 convener that it will send a 2 person Ada-Europe liaison delegation to Meeting #66 in Paris, France, on Friday 27 November 2014.

The delegation consists of:

- Erhard Ploedereder

- Dirk Craeynest (presenter)

The next Ada-Europe conference will be held on June 22-26, 2015, in Madrid, Spain, and we reconfirm our usual hospitality agreement for WG9, ARG and HRG, as well as for WG23.

We reconfirm our willingness to support the Ada standardization related activities. As in previous years, Ada-Europe is willing to continue supporting the WG9 convener, hopefully together with SIGAda and the ARA.

We reported earlier the commercial publication of the Rationale in Springer's LNCS series (volume 8338). In the mean-time we also published the Reference Manual (LNCS volume 8339). Several national organizations bought a copy for each of their members, in other countries direct and indirect members decided on an individual basis.

Finally, we produced an e-book version of the RM. It is available freely from the Ada-Europe web-site, and was accessed approx. 160 times in the 4 weeks since it was announced.

**SIGAda Liaison Report:**

**SIGAda Liaison Representative, David Cook**

The next SIGAda meeting is planned for Portland, Oregon in October 18-21, 2014.  Michael Feldman (George Washington University, Retired) has agreed to be the conference chair and Tucker Taft has agreed to be the Program Chair.  In addition, Jeff Boleng has agreed to be Conference Treasurer.  We are co-locating this conference in conjunction with SPLASH (Conference on Systems, Programming, Languages and Applications: Software for Humanity), sponsored by SIGPLAN.

Discussion about when and where WG 9 will meet at that SIGAda meeting: WG 9 usually meets in a meeting room after SIGAda’s conference is over. This is still the plan - we have not firmed up hotel rooms and dates yet. If not at the same venue, there are other places in Portland where it can be located. SIGAda understands that it would be best for WG 9 to meet after the end of SIGAda’s conference on the same day as SPLASH’s opening session.

ARG could run parallel with HILT’s tutorials, and perhaps ARG could meet during the weekend before HILT (when HILT’s tutorials are held). SIGAda Vice chair, Tucker Taft, would rather not miss the HILT tutorials. Perhaps WG 9 could meet on Sunday or perhaps on an evening. We understand that this would be more of a challenge, because ARG usually has one or two full days.  We will be addressing these issues in the coming months.

Our Executive Committee consists of David A. Cook (Chair), Tucker Taft (Vice Chair), Clyde Roby (Secretary/Treasurer), and Dirk Craeynest (International Representative).  Completing the Executive Committee are Ricky Sward (Past Chair) and Alok Srivastava (Editor of ACM Ada Letters).

**WG 23 Liaison Report:
WG 23 Liaison Representative, Erhard Ploedereder**

As reported at the last meeting, WG23 was without convenor after John Benito resigned in the Fall of 2013.  The US had the prerogative of nominating a new convenor. Apparently after significant discussions over the products of the group and after a long delay, Tom Plum was
named convenor. His first communication to the OWG in March stated: "I have canceled the telecon meeting that would have been held on March 24-25 2014.  At an appropriate time, I will distribute an agenda for a teleconference meeting.  I do not intend to hold any face-to-face
meetings during 2014." OWG now had a convener who refused to convene the group.  Later it became known that the US PL-22 Group (The US mirror to SC22) had taken the unprecedented step to ask for an SC22 ballot on closing WG23 without ever consulting the other national
bodies or the members involved in WG23.  The ballot was withdrawn because interventions with JTC 1 convinced the JTC 1 leadership that the move by the secretary to issue such a letter
ballot on the request of a single NB with no discussion at plenary was setting a dangerous precedence for SC 22 and all of JTC 1. Also, it was rumored that it would receive only a single "Yes" vote from countries participating in SC22 and many "No" votes.

WG23 is still not back to technical work at this time. However, several telecons will now be scheduled by the convenor for July and August, posing an agenda that would, among other things, now ask the group to discuss its future. The non-US members of the group have long
decided in informal meetings that they want to continue the work and see no objective reason to disband as the US desires; even some US-members share this view. Hence any controversial discussion will depend on the position taken by other US members of WG23. New names
have shown up on the reconstituted list of WG23 members. Reasons for the fierce opposition to WG23 by US PL-N22 are not publicly known. Contingency plans have been made by non-US members, should the US succeed in shutting down WG23 after all, so that the technical work
will continue under ISO nevertheless after this very unpleasant interlude.

Meanwhile, an additional WG has asked to establish a new liaison relationship with WG23 to work on the Annexes.

The non-US members of WG23 have also informally agreed to encourage the liaised WGs to resume active work on the Annexes to counter any argument that no progress is being made on the Vulnerability TR.

The Vulnerability TR awaits corrections to the Annexes to match the state of the core document of version 2. Furthermore, the additional vulnerability descriptions which were given an extra section in version 2 will be integrated into the main section as always planned. Annex writers will be asked to provide their matching subsections. These updates, as already approved by SC22 in 2013 as future work in the unopposed business plan of WG23, may be complemented by the addition of new vulnerabilities. The latter is to be decided in future meetings of WG23.

The Code Signing Document, IS 17960, has reached DIS level, but, because of a deficiency discovered too late in the past standardized step to be repaired, it is expected to be returned to committee for this repair. The UK (and possibly Japan) has already asked officially for the repair.

**FORTRAN, INCITS/PL22.3 Liaison Report:**

**FORTRAN, INCITS/PL22.3 Liaison Representative, Van Snyder**

No Report

[AGENDA](#A3)

### Convener's Report

### Activities since the Last Session

There has been a change in the rules regarding ISO Working Group participation and ISO is requiring all working groups to move their documents to LiveLink.

Resolution 30A of last year’s JTC1 meeting changes the participants in WGs from NB-endorsed to individual participation. This introduces new problems with respect to the rules for conduction WG meetings, as we are experiencing with this meeting.

***Resolution 30A – Change to the 2014 version of the Consolidated JTC 1 Supplement concerning WG Participation***

*Based on the discussions during this Plenary meeting and noting the importance of aligning JTC 1’s process with that of ISO/IEC in this area, JTC 1 approves the following changes to clause 1.12 and instructs the Editor of the Consolidated JTC 1 Supplement to incorporate these changes into the 2014 version of the Consolidated JTC 1 Supplement prior to publication.*

***1.12******Working groups***

***1.12.1*** *Technical committees or subcommittees may establish working groups for specific tasks (see 2.4). A working group shall report to its parent technical committee or subcommittee through a convenor appointed by the parent committee.*

*A working group comprises a restricted number of experts individually appointed by the P- members, A-liaisons of the parent committee and D-liaison organizations, brought together to deal with the specific task allocated to the working group. The experts act in a personal capacity and not as the official representative of the P-member or A-liaison organization (see 1.17) by which they have been appointed with the exception of those appointed by D-liaison organizations (see 1.17). However, it is recommended that they keep close contact with that P- member or organization in order to inform them about the progress of the work and of the various opinions in the working group at the earliest possible stage.*

*In JTC 1, national bodies that are P-members or O-members of the parent body and organizations in liaison Category A and Category C (see 1.17 of the ISO/IEC Directives, Part 1) may nominate appoint experts as members of a working group. Internal organizations (e.g. other subcommittees or other ISO or IEC technical committees, see 1.16 of the ISO/IEC Directives, Part 1) may also participate in working group meetings.*

*It is recommended that working groups be reasonably limited in size. The technical committee or subcommittee may therefore decide upon the total number of experts and also upon the maximum number of experts appointed by each P-member.*

*Once the decision to set up a working group has been taken, P-members and A- and D-liaison organizations shall be officially informed in order to appoint expert(s).*

*Working groups shall be numbered in sequence in the order in which they are established. When a committee has decided to set up a working group, the convenor or acting convenor shall immediately be appointed and shall arrange for the first meeting of the working group to be held within 3 months.*

*This information shall be communicated immediately after the committee meeting to the P-members of the committee and A- and D-liaison organizations, with an invitation to appoint experts within 6 weeks.*

*In JTC 1, the parent body shall assign responsibility for the administration of a working group to a convenor, if necessary supported by a secretariat. Any secretariat shall be either a national body or an organization endorsed by the national body. The national body must confirm in writing its consent to the arrangement before it can be effected. All WG Convenorships shall be for a nominal three-year terms ending at the next plenary session of the parent body following the three year term. The Convenor may be reappointed for additional three-year terms.*

*Germany, Japan, and Norway abstain*

In 2012, the ISO Technical Management Board (TMB) adopted TMB Resolution 64/2012 which made the use of Livelink mandatory for engaging in ISO technical work. By default in JTC 1, the LiveLink documents of a WG will be visible to the world.  Documents will only be protected if the WG specifically chooses a particular document to protect.  For example, even after moving to LiveLink, WG 9 and WG 23 will be able to see each other's documents, and outsiders will be able to see those documents as well.



According to Henry Cuschieri, from ISO, by default in JTC 1, the LiveLink documents of a WG will be visible to the world.  Documents will only be protected if the WG specifically chooses to protect a particular document.  That being said, other WGs have tried to up load their documents and make them visible to their entire community without much success.

If I upload all of our documents myself, then the date on the documents will become the date that I upload them. On the other hand, it is possible to work with ISO to upload the documents for us and preserve the dates. John Benito has been working on a solution using DropBox. Therefore, although there may still be some glitches in the implementation, we will need to move our documents up to LiveLink soon.

WG 9 agreed with the stabilization of the PCTE Ada binding standard ISO/IEC
13719-3:1998.

Bill Rinehuls, former SC 22 Chair, died 25 Mar 2014.

**Welcome**

#### Goals for this Meeting

The major objectives for this meeting are:

1. Ada 2012 proposals – discussion during the Committee as a Whole session
2. Status on WG 23 and their Technical Report on Vulnerabilities – discussion during the Committee as a Whole session
3. Meeting locations – discussion during the Committee as a Whole session

[AGENDA](#A4)

### Project Editor Reports

### ISO/IEC 15291 (ASIS)

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

### No comments have been received on the Standard since the last report.Hence there are no activities to report.

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

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

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

[AGENDA](#A5)

### Rapporteur Reports

**Rapporteur Report ARG:**

The Ada 2012 standard has already generated 120 Ada issues. The ARG meeting in Pittsburgh during November 2014 discussed all of the “regular” (i.e. on the current standard, not the potential Ada 2020 amendment) AIs on the agenda. (The agenda excluded a few AIs still awaiting input). Seven amendment AIs were also discussed. Most AIs achieved some form or other of interim approval; a couple were rejected.

As of 3 June 2014, 32 AIs have been approved by WG 9, 12 by the ARG but not yet by WG 9 and 69 are work in progress. Of the 69, 29 are ready for discussion by the ARG, 25 are candidate amendments, and the rest are pending further input.

A number of AI's have completed editorial review and are ready for approval by WG 9. The list follows. As usual, full text of the AI's can be found at [www.ada-auth.org/ais.html](http://www.ada-auth.org/ais.html) (this list was distributed on 9 May 2014):

AI12-0031-1/05 2014-05-08 -- All\_Calls\_Remote and indirect calls

AI12-0036-1/03 2014-05-08 -- The actual for an untagged formal derived type cannot be tagged

AI12-0052-1/04 2014-05-08 -- Implicit objects are considered overlapping

AI12-0065-1/02 2013-12-17 -- Descendants of incomplete views

AI12-0071-1/05 2013-12-13 -- Order of evaluation when multiple predicates apply

AI12-0081-1/01 2013-10-21 -- Real-time aspects need to specify when they are evaluated

AI12-0082-1/03 2014-05-08 -- Definition of "dispatching domain"

AI12-0084-1/01 2013-10-28 -- Box expressions in array aggregates

AI12-0085-1/03 2014-05-08 -- Missing aspect cases for Remote\_Types

AI12-0088-1/03 2013-12-06 -- UTF\_Encoding.Conversions and overlong characters on input

AI12-0089-1/03 2014-05-08 -- Accessibility rules need to take into account that a generic function is not a function

AI12-0093-1/04 2014-05-08 -- Iterator with indefinite cursor

For the time being, work on the ASIS standard has been paused.

Future meetings are scheduled for 27-29 June 2014 in Paris, France, in conjunction with the Ada-Europe 2014 conference, and 18-19 October 2014 in Portland, Oregon, U.S.A., in conjunction with the HILT (formerly SIGAda) 2014 conference.

Continuation of the ARG: Resolution [66-2](#r2).

Resolution for the approval of the AI-s: Resolution [66-5](#r5).

 **Rapporteur Report HRG:**

The HRG has not met since the last meeting of WG9. Confusion over the state of the Vulnerabilities report meant that we have not worked further on the Ada aspects of this report. HRG will return to this work if and when WG9 sanction the work.

Continuation of the HRG: Resolution [66-3](#r3).

[AGENDA](#A5)

### Open Action Items and Unimplemented Resolutions

This is the "To Do" list for WG9. 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.

#### Action Item 50-1:

Investigate the possibility that ANSI might be willing to sell the revised ASIS standard ISO/IEC 15291:200x inexpensively, i.e. at a price similar to that of programming language standards -- $18.

*Status:* Open. *It has been surprisingly difficult to obtain the appropriate contact information.* Bill Thomas will look into this further and get back to us at the next meeting (#54).

ANSI does not set the prices. If they get a standard from ISO, then ISO sets the price and ANSI must conform to the prices set by ISO. ANSI could designate another organization to sell an ISO standard, but the ISO price must still be satisfied.

Is there an alternative to investigate here to distribute non-standard materials? Also look into the steps that John Benito has taken to distribute the C standard.

Bill Thomas will investigate further and report back at meeting #63.

Stephen Michell will investigate further and report back at meeting #67.

**Action 63-3**

Determine if the IRTAW group is willing to update the ISO/IEC 15942 standard to be in alignment with Ada 2012. (Tullio Vardanega)

*Status: Open*

*Discussion:* Tullio has talked with Alan Burns but no further action has been taken at this time. Revisit at the next meeting.

**Action 63-6**

Dan Eilers will work with JP Rosen to provide a preliminary list of the issues that prevent public packages, libraries, and bindings from working on all compilers and provide this to Tucker Taft.

*Discussion:* No action at this time.

**Action 63-7**

Find out what compilers are validated against what versions of the Standard (Randy Brukardt, Dirk Craeynest)

*Discussion:* The question is how to update the “official” list of validated compilers to document what is available for which version of Ada. The ARA currently posts this list. Who should post this list? How are the self validations certified? Ada Belgium could produce this list and then the ARA could link to the Ada Belgium.

Status: Closed see Resolution [66-6](#r6).

**Action 64-1:** JP Rosen (France) will investigate the possibilities of conducting Meeting #66 at AFNOR and report back to WG 9 no later than Meeting #65.

*Discussion:* Closed – WG 9 decided during meeting #64 that we would meet at the Ada-Europe conference venue. Further discussion during this meeting confirmed the decision to meet at the Ada-Europe conference venue and invite the AFNOR membership to participate in the meeting.

**Resolution** **64-12:**

ISO/JTC 1/SC 22/WG 9 will contact ISO/JTC 1/SC 22/WG 14 to enquire about developing a cooperative effort on parallel programming models, e.g., CPLEX, and report back to ISO/JTC 1/SC 22/WG 9 at Meeting #65.

*Discussion:* The work on CPLEX is being monitored by Tucker Taft, Steve Michell, Brad Moore, and Miguel Pinho. See Action Item 65-1.

**Action Item 65-1:** Taft, Moore, Michell, Pinho to develop and present plan on the way forward for WG 9 with respect to the development of an API to OpenMP and/or CPLEX to be presented at the ARG meeting in June 2014.

*Discussion:* Have a report that has been sent to the ARG. It may be worth creating an Ada binding to the OpenMP runtime. Cannot claim OpenMP conformance unless you have gone to the OpenMP consortium with the binding and they have accepted it However, OpenMP does not have the concept of a binding to the OpenMP runtime. So there may not be a need to get any conformance approval from OpenMP.

For interoperability, the OpenMP runtime binding may be sufficient.

The ARG is going to review the information that has been collected and determine if there is any action that needs to be taken.

*Status:* *Closed*

**Action Item 65-2:** The Convenor of WG 9 will send a letter to AFNOR inviting them to attend the meeting at the Ada Europe conference location.

*Discussion:* AFNOR was contacted followed by considerable confusion ending in this meeting being conducted virtually.

*Status: Closed*

**Action Item 65-3**: The Convenor will contact the FORTRAN Convenor and Richard Cook to determine what the process is for the generation of corrigenda and new revision and email the findings to the WG.

*Discussion:* From John Reid, FORTRAN Convenor, “Each interpretation begins with a request from someone (often a committee member) for resolution of what appears to be an ambiguity or
error in the standard. It has to be submitted in a defined format, see examples in the attached file. 

The submitter often includes a draft response and edits. The process that is then followed is explained in Part 1 of the attached file.

Having letter ballots (usually for one month) of J3 and then WG5 is designed to ensure that we really have got the interpretation right. With this procedure, we have never had any problems with the SC22 vote on a submitted corrigendum and there have been very few cases (not zero, I am sorry to say) where we have realized that we had something wrong in a corrigendum.

We send the corrigendum to ISO as a pdf document (example attached) and it is published without change except for the title page and headers and footers. In the past, we have had problems with someone at ISO thinking that the text can be improved. The trouble is that the slightest word change, or even font change, can alter the meaning.

We aim to send a corrigendum annually.”



From Richard Cook, “Clause 3 of JTC 1 Standing Document 8 describes the procedure for correction of defects.

Note that ITTF does not maintain a consolidated version of standards with published Amendments and Corrigenda applied.”

*Status: Closed*

[AGENDA](#AA)

### Committee as a Whole

* Status on WG 23 and their Technical Report on Vulnerabilities (Burns, Ploedereder)

*Discussion:* WG 9 should continue on the WG 23 Technical Report. Need a strong statement from WG 9 to continue to do updates on the existing Annex correcting the content with respect to Ada 2012 and add the six additional vulnerabilities.

The new convenor of WG 23 (Tom Plum) has invited new US members to WG 23.

If the US does not want to continue work in WG 23, then SC 22 should appoint a new convenor from a National Body that supports the work of WG. Then the US would not need to continue its support of the WG 23. If this does not succeed, then the plans for another organization to pick up the work of WG 23 will be executed.

Resolution 66-7:

* SPARK as an ISO Standard (Dewar)

*Discussion:* This topic has been deferred.

* Maintenance of Ada 2012 (Brukardt, Cousins, Taft)

*Discussion:* Should there be a yearly corrigendum? Or should these be developed and delivered every two years, two and a half years, or three years? Then a new edition may be produced in five years. Should there be a corrigendum and then an amendment before producing a new edition?

Need a corrigendum to correct errors in Ada 2012 and other issues associated with the completeness of the language.

Over the next twelve months, the ARG will produce a corrigendum for Ada 2012 and deliver it to WG 9. Resolution 66-8.

* Meeting locations (Tokar)

*Discussion* When a meeting of WG 9 is conducted, it must be approved by the host nation national body.

Unfinished Business

**New Business**

Scheduling of Future Meetings

The next meeting of WG9 will be held in conjunction with [High Integrity Language Technology 2014 (HILT 2014)](http://www.sigada.org/conf/hilt2014), on the morning of 20 Oct 2014 (07:00-10:00 PDT) in Portland OR, USA.

The next meeting of WG9 will be held in conjunction with the [20th International Conference on Reliable Software Technologies Ada-Europe 2015](http://www.ada-europe.org/conference2015), Friday morning 26 June 2015 in Madrid, Spain

[Resolution 66-4](#r5)

[AGENDA](#AC)

**Administrative Actions**

#### Resolution 66-1:

The minutes of Meeting #65 contained in document [N539](#N539) are approved.

##### Resolution 66-2:

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

Jeff Cousins (UK) is appointed as Rapporteur.

The membership of the ARG is designated to be: Steve Baird (SIGAda), John Barnes (UK), Randy Brukardt (US), Alan Burns (UK), Jeff Cousins (UK), Robert Dewar (US), Gary Dismukes (US), Robert Duff (US), Pascal Leroy (TBD), Brad Moore (Canada), Erhard Ploedereder (Ada-Europe), Jean-Pierre Rosen (TBD), Ed Schonberg (US), Tucker Taft (US), and Tullio Vardanega (Italy).

The Convenor of WG 9 is authorized to act for WG 9 between meetings in appointing additional members of the ARG. In doing so, she 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 66-3:

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

Alan Burns (UK) is continued as Rapporteur.

The membership of the HRG is designated to be: Steve Baird (US), John Barnes (UK), Patrick de Bondeli (TBD), Alan Burns (UK), Rod Chapman (UK), Robert Dewar (US), Gary Dismukes (US), Bob Duff (US), Michael Gonzalez Harbour (Spain), Stephen Michell (Canada), Brad Moore (Canada), Miguel Pinho (Portugal), Erhard Ploedereder (Ada-Europe), Juan Antonio de la Puente (Spain), George Romanski (SIGAda), Jean-Pierre Rosen (TBD), S. Tucker Taft (US), Tullio Vardanega (Italy), and Brian Wichmann (UK).

The Convenor of WG 9 is authorized to act for WG 9 between meetings in appointing additional members of the HRG. In doing so, she 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 66-4

ISO/IEC JTC 1/SC 22/WG 9 schedules future meetings as follows:

Meeting #67, in conjunction with [High Integrity Language Technology 2014 (HILT 2014)](http://www.sigada.org/conf/hilt2014), 22 Oct 2014 in Portland OR, USA.

Meeting #68 in conjunction with the [20th International Conference on Reliable Software Technologies Ada-Europe 2015](http://www.ada-europe.org/conference2015), Friday morning 26 June 2015 in Madrid, Spain

[AGENDA](#AD)

#### Review of New Action Items

[AGENDA](#AD)

### Review of New Resolutions

**Resolution 66-5:**

AI12-0031-1/05 2014-05-08 -- All\_Calls\_Remote and indirect calls

AI12-0036-1/03 2014-05-08 -- The actual for an untagged formal derived type cannot be tagged

AI12-0052-1/04 2014-05-08 -- Implicit objects are considered overlapping

AI12-0065-1/02 2013-12-17 -- Descendants of incomplete views

AI12-0071-1/05 2013-12-13 -- Order of evaluation when multiple predicates apply

AI12-0081-1/01 2013-10-21 -- Real-time aspects need to specify when they are evaluated

AI12-0082-1/03 2014-05-08 -- Definition of "dispatching domain"

AI12-0084-1/01 2013-10-28 -- Box expressions in array aggregates

AI12-0085-1/03 2014-05-08 -- Missing aspect cases for Remote\_Types

AI12-0088-1/03 2013-12-06 -- UTF\_Encoding.Conversions and overlong characters on input

AI12-0089-1/03 2014-05-08 -- Accessibility rules need to take into account that a generic function is not a function

AI12-0093-1/04 2014-05-08 -- Iterator with indefinite cursor

These AIs are hereby approved by WG9.

**Resolution 66-6:** ISO/IEC JTC 1/SC 22/W 9 expresses support and thanks to Ada Belgium for proposing to collect the data regarding available compilers and the version of Ada for which they claim conformance; and make the data available to the community.

**Resolution 66-7:** A small team of WG 9 members (Taft, Ploedereder, Burns, Tokar) will produce an update of the Ada Annex and the SPARK Annex to the WG 23 Technical Report on Vulnerabilities. The HRG will review the Annexes as they are available. The HRG will provide a draft for review at the next meeting (#67) of WG 9.

**Resolution 66-8:**  ISO/IEC JTC 1/SC 22/WG 9 directs the ARG to produce a corrigendum for Ada 2012 and deliver it to WG 9 by meeting #69 (Fall 2015).

[AGENDA](#AD)

### Final Consideration of Resolutions

#### Appreciation

**Resolution 66-9:**

ISO/IEC JTC 1/SC 22/W 9 expresses its grateful appreciation to Ada Europe and ECE for their gracious accommodations in providing a meeting room for those attending the teleconference for Meeting #66.

**Resolution 66-10:**

ISO/IEC JTC 1/SC 22/W 9 expresses its grateful appreciation to Clyde Roby for his continuing service in maintaining the WG 9 Web Page.

##### Resolution 66-11:

ISO/IEC JTC 1/SC 22/WG 9 expresses its grateful appreciation to Joyce Tokar for convening Meeting #66.

[AGENDA](#AF)

Recess –

The meeting ended at <TBD>. The Convenor recessed the meeting subject to her call. HODs may anticipate email ballots to be conducted during the months between this meeting and the next one.

[AGENDA](#AG)

## REFERENCES

### Relevant WG9 Documents

[ISO/IEC 8652:1995](http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=22983) Information Technology--Programming Languages—Ada

[ISO/IEC 8652:1995/COR.1:2001](http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=35451), Technical Corrigendum to Information Technology--Programming Languages—Ada

[ISO/IEC 8652:1995/AMD.1:2007](http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=45001), Amendment to Information Technology--Programming Languages—Ada

ISO/IEC 8652:2012 Information Technology--Programming Languages—Ada

[N388](http://www.open-std.org/jtc1/sc22/wg9/n388.htm), Request for Subdivision of Project ISO/IEC 8652:1995

[N406](http://www.open-std.org/jtc1/sc22/wg9/n406.pdf), Procedures of the Ada Rapporteur Group

[N412](http://www.open-std.org/jtc1/sc22/wg9/n412.pdf), Instructions to the Ada Rapporteur Group from SC22/WG9 for Preparation of the Amendment to ISO/IEC 8652, 10 October 2002

[N414](http://www.open-std.org/jtc1/sc22/wg9/n414.pdf), Notification of Approval of Category C Liaisons between SC22/WG9 and Ada-Europe and SIGAda

[N416](http://www.open-std.org/jtc1/sc22/wg9/n416.htm), Charter of the Annex H Rapporteur Group (HRG)

[N417](http://www.open-std.org/jtc1/sc22/wg9/n417.htm), Charter of the ASIS Rapporteur Group (ASISRG)

[N423](http://www.open-std.org/jtc1/sc22/wg9/n423.pdf), Convener's Comments on Instructions to the Ada Rapporteur Group from SC22/WG9 for Preparation of the Amendment to ISO/IEC 8652, December 2002

[N437](http://www.open-std.org/jtc1/sc22/wg9/n437.pdf), ARG Rapporteur's Proposal for Defining Scope of Amendment to ISO/IEC 8652:1995, 9 April 2004

[N456](http://www.open-std.org/jtc1/sc22/wg9/N456.pdf), Convener Proposal for the Revision of the ASIS Standard, ISO/IEC 15291

[N457](http://www.open-std.org/jtc1/sc22/wg9/n457.pdf), Approved Plan for the Revision of the ASIS Standard, ISO/IEC 15291

[N459](http://www.open-std.org/jtc1/sc22/wg9/n459.txt), Disposition of Informal Comments Received on Editor's Draft of Amendment, 23 March 2006

[N460](http://www.open-std.org/jtc1/sc22/wg9/n460.pdf), Editor's Draft, Amendment 1 to ISO/IEC 8652, March 2006

[N462](http://www.open-std.org/jtc1/sc22/wg9/n462.pdf), JTC1 Directives, 5th edition, Version 2, April 2006 (JTC001-N-8122)

[N463](http://www.open-std.org/jtc1/sc22/wg9/n463.pdf), ISO/IEC Directives, Part 2, Rules for the structure and drafting of International Standards

[N464r](http://www.open-std.org/jtc1/sc22/wg9/n464r.pdf), 2nd Preliminary draft New Work Item Proposal for the Revision of ISO/IEC 15291, ASIS

[N465](http://www.open-std.org/jtc1/sc22/wg9/N465.pdf), Response of ISO/IEC JTC1/SC22/WG9 to SC22 Resolution 5-15

[N467](http://www.open-std.org/jtc1/sc22/wg9/n467.pdf), Submission of ISO/IEC 8652:1995/FPDAM 1 to SC22 for FPDAM ballot

[N468](http://www.open-std.org/jtc1/sc22/wg9/n468.pdf), Example approach for structuring the revised ASIS Standard

[N472](http://www.open-std.org/jtc1/sc22/wg9/n472.pdf), Proposal to Revise ISO/IEC 15291, Information technology - Programming languages - Ada Semantic Interface Specification (ASIS)

[N477](http://www.open-std.org/jtc1/sc22/wg9/n477.pdf), Canadian Contribution, Initial Work Scope Summary for updating Ada POSIX Bindings IS 14519:2001 to POSIX Draft IS 9945:2008 and Ada 2005.

[N479](http://www.open-std.org/jtc1/sc22/wg9/n479.pdf), SIGAda contribution, Clyde Roby, Notes of Birds-of-a-Feather session on POSIX-Ada Binding, conducted at SIGAda 2006, November 15, 2006, Albuquerque, NM, USA.

[N489](http://www.open-std.org/jtc1/sc22/wg9/n489.ppt), OWGV Summary 2008

[N490](http://www.open-std.org/jtc1/sc22/wg9/n490.htm), Minutes, Meeting #54 of ISO/IEC JTC1/SC22/WG9, Friday, 20 June 2008, Venice, Italy

[N491](http://www.open-std.org/jtc1/sc22/wg9/n491.htm), Convener's Report, 2008, ISO/IEC JTC 1/SC 22/WG 9 (Ada)

[N492](http://www.open-std.org/jtc1/sc22/wg9/n492.rtf), Announcement and Draft Agenda, Meeting #55 of ISO/IEC JTC 1/SC 22/WG 9, Thursday, 30 October 2008, Portland, Oregon, USA

[N493](http://www.open-std.org/jtc1/sc22/wg9/n493.htm), Detailed Draft Agenda, Meeting #55 of ISO/IEC JTC 1/SC 22/WG 9, Friday, 30 October 2008, Portland, Oregon, USA

[N494](http://www.open-std.org/jtc1/sc22/wg9/n494.htm), Draft Meeting Minutes, Meeting #55 of ISO/IEC JTC1/SC22/WG9, Thursday, 30 October 2008, Portland, Oregon, USA

[N495](http://www.open-std.org/jtc1/sc22/wg9/n495.htm), Draft Agenda, Meeting #56 of ISO/IEC JTC 1/SC 22/WG 9, Friday, 12 June 2009, Brest, France

[N496](http://www.open-std.org/jtc1/sc22/wg9/n496.doc), Detailed Agenda, Meeting #56 of ISO/IEC JTC 1/SC 22/WG 9, Friday, 12 June 2009, Brest, France

[N497](http://www.open-std.org/jtc1/sc22/wg9/n497.doc), Meeting Minutes, Meeting #56 of ISO/IEC JTC-1/SC-22/WG 9, Friday, 12 June 2009, Brest France

[N498](http://www.open-std.org/jtc1/sc22/wg9/n498.pdf), Instructions to the Ada Rapporteur Group from SC 22/WG 9 for Preparation of Amendment 2 to ISO/IEC 8652

[N499](http://www.open-std.org/jtc1/sc22/wg9/n499.doc), Announcement and Draft Agenda, Meeting #57 of ISO/IEC JTC1/SC22/WG9, Thursday, 5 November 2009, Tampa Bay, Florida

[N500](http://www.open-std.org/jtc1/sc22/wg9/n500.doc), Convener's Report, 2009, ISO/IEC JTC 1/SC 22/WG 9 (Ada)

[N501](http://www.open-std.org/jtc1/sc22/wg9/n501.doc), Detailed Agenda, Meeting #57 of ISO/IEC JTC1/SC22/WG9, Thursday, 5 November 2009, Tampa Bay, Florida

[N502](http://www.open-std.org/jtc1/sc22/wg9/n502.doc), Meeting Minutes, Meeting #57 of ISO/IEC JTC-1/SC-22/WG 9, Thursday 5 Nov 2009 in Tampa Bay, Florida.

[N503](http://www.open-std.org/jtc1/sc22/wg9/n503.doc), Announcement and Draft Agenda, Meeting #58 of ISO/IEC JTC1/SC22/WG9, Friday, 18 June 2010

[N504](http://www.open-std.org/jtc1/sc22/wg9/n504.doc), Detailed Agenda, Meeting #58 of of ISO/IEC JTC1/SC22/WG9, Friday, 18 June 2010

[N505](http://www.open-std.org/jtc1/sc22/wg9/n505.doc), ARG Rapporteur’s Proposal for Defining Scope of Amendment 2 to ISO/IEC 8652:1995, 4 June 2010

[N506](http://www.open-std.org/jtc1/sc22/wg9/n506.doc), Draft Letter to the Community

[N507](http://www.open-std.org/jtc1/sc22/wg9/n507.doc), Annex Ada to ISO/IEC JTC 1/SC 22/WG 23 N0238, Guidance to Avoiding Vulnerabilities in Programming Languages through Language Selection and Use, Draft 1, 20 June 2010

[N508](http://www.open-std.org/jtc1/sc22/wg9/documents.htm), Draft Minutes, Meeting #58 of ISO-IEC JTC-1 SC-22-WG 9, Friday, 18 June 2010, Valencia, Spain

[N509](http://www.open-std.org/jtc1/sc22/wg9/documents.htm), Convener's Report, 2009, ISO/IEC JTC 1/SC 22/WG 9

N510, Request for Subdivision of Project ISO/IEC 8652:1995

[N511](http://www.open-std.org/jtc1/sc22/wg9/documents.htm), Announcement and Draft Agenda, Meeting #59 of ISO/IEC JTC 1/SC 22/WG 9, Thursday afternoon, 28 October 2010, Fairfax, VA, USA

[N512,](http://www.open-std.org/jtc1/sc22/wg9/n512.doc) Ada Annex for the WG23 Technical Report on Software Vulnerabilities, Draft 2.

[N513](http://www.open-std.org/jtc1/sc22/wg9/n513.doc), Draft Detailed Agenda, Meeting #59 of ISO-IEC JTC-1 SC-22-WG 9, Thursday, 28 October 2010, Fairfax, VA

[N514](http://www.open-std.org/jtc1/sc22/wg9/n514.doc), Draft Minutes, Meeting #59 of ISO-IEC JTC-1 SC-22-WG 9, Thursday, 28 October 2010, Fairfax, Virginia, USA

[N515](http://www.open-std.org/jtc1/sc22/wg9/n515.doc), Announcement and Draft Agenda, Meeting #60 of ISO/IEC JTC 1/SC 22/WG 9, Friday morning 24 June 2011, Edinburgh, UK.

[N516](http://www.open-std.org/jtc1/sc22/wg9/n516.doc), ISO/IEC JTC 1/SC 22/WG 23 N0296 – Ada Annex to WG23 TR on Software Vulnerabilities.

[N517](http://www.open-std.org/jtc1/sc22/wg9/n517.doc), ISO/IEC JTC 1/SC 22/WG 23 N0275 – SPARK Annex to WG23 TR on Software Vulnerabilities.

[N518](http://www.open-std.org/jtc1/sc22/wg9/n518.doc), Draft Detailed Agenda, Meeting #60 of ISO-IEC JTC-1 SC-22-WG 9, Friday, 24 June 2011, Edinburgh, UK.

[N519](http://www.open-std.org/jtc1/sc22/wg9/n519.doc), Draft Minutes, Meeting #60 of ISO-IEC JTC-1 SC-22-WG 9, Friday, 24 June 2011, Edinburgh, UK.

[N520](http://www.open-std.org/jtc1/sc22/wg9/n520.doc), Convenor's Report, 2010, ISO/IEC JTC 1/SC 22/WG 9 (Ada).

[N521](http://www.open-std.org/jtc1/sc22/wg9/n521.doc), Announcement and Draft Agenda, Meeting #61 of ISO/IEC JTC 1/SC 22/WG 9, Thursday afternoon, 10 November 2011, Denver, CO, USA.

[N522](http://www.open-std.org/jtc1/sc22/wg9/n522.doc), Draft Minutes, Meeting #61 of ISO-IEC JTC-1 SC-22-WG 9, Thursday, 10 November 2011, Denver, CO, USA.

[N523](http://www.open-std.org/jtc1/sc22/wg9/n523.xls), Responses to JTC 1/SC 22/WG 9/National Body Comments on Draft revision of the Ada Standard

[N524](http://www.open-std.org/jtc1/sc22/wg9/n524.doc), Detailed Agenda Meeting #62 of ISO/IEC JTC1/SC22/WG9 Friday 15 June 2012 in Stockholm, Sweden.

[N525](http://www.open-std.org/jtc1/sc22/wg9/n525.doc), Draft Minutes, Meeting #62 of ISO-IED JTC-1 SC-22 WG-9. Friday 15 June 2012, Stockholm, Sweden.

[N526](http://www.open-std.org/jtc1/sc22/wg9/ISO_IEC_JTC1_SC22_WG9_N526-8652-DIS.pdf), ISO/IEC JTC 1/SC 22 N Date: 2012-03-30 ISO/IEC CD 8652.

[N527](http://www.open-std.org/jtc1/sc22/wg9/ISO_IEC_JTC1_SC22_WG9_N527-8652-DIS.pdf), ISO/IEC JTC 1/SC 22 N Date: 2012-05-18 ISO/IEC WD 8652.

[N528](http://www.open-std.org/jtc1/sc22/wg9/ISO_IEC_JTC1_SC22_WG9_N528-8652-DIS.pdf), ISO/IEC JTC 1/SC 22 N Date: 2012-06-06 ISO/IEC DIS 8652.

[N529](http://www.open-std.org/jtc1/sc22/wg9/n529.doc), Convenor's Report, 2011, ISO/IEC JTC 1/SC 22/WG 9 (Ada).

[N530](http://www.open-std.org/jtc1/sc22/wg9/n530.doc), Meeting #63 Announcement and Draft Agenda.

[N531](http://www.open-std.org/jtc1/sc22/wg9/n531.doc), Detailed Agenda, Meeting #63 of ISO/IEC JTC 1/SC 22/WG 9, Friday 7 Dec 2012, Boston, USA

[N532](http://www.open-std.org/jtc1/sc22/wg9/n532.doc), Meeting Minutes Meeting #63 of ISO/IEC JTC 1/SC 22/WG 9 Friday 7 December 2012 in Boston, USA

[N533](http://www.open-std.org/jtc1/sc22/wg9/n533.doc), Meeting #64 Announcement and Draft Agenda, Friday 14 June 2013, Berlin, Germany

[N534](http://www.open-std.org/jtc1/sc22/wg9/n534.doc), Draft Detailed Agenda, Meeting #64 of ISO/IEC JTC 1/SC 22/WG 9, Friday 14 June 2013 in Berlin, Germany

[N535](http://www.open-std.org/jtc1/sc22/wg9/n535.doc), Draft Meeting Minutes Meeting #64 of ISO/IEC JTC 1/SC 22/WG 9, Friday 14 June 2013 in Berlin, Germany

[N536](http://www.open-std.org/jtc1/sc22/wg9/n536.doc), Convenor's Report, 2012, ISO/IEC JTC 1/SC 22/WG 9 (Ada)

[N537](http://www.open-std.org/jtc1/sc22/wg9/n537.doc), Meeting #65 Announcement and Draft Agenda

[N538](http://www.open-std.org/jtc1/sc22/wg9/n538.doc), Draft Detailed Agenda, Meeting #65 of ISO/IEC JTC1/SC22/WG9, Friday 15 November 2013 in Pittsburgh, PA, USA

[N539](http://www.open-std.org/jtc1/sc22/wg9/n539.doc), Draft Meeting Minutes Meeting #65 of ISO/IEC JTC 1/SC 22/WG 9, Friday 15 November 2013 in Pittsburgh, PA, USA

[N540](http://www.open-std.org/jtc1/sc22/wg9/n540.doc), Meeting #66 Announcement and Draft Agenda

[N541](http://www.open-std.org/jtc1/sc22/wg9/n541.doc), Convenor's Report to INCITS

[N542](http://www.open-std.org/jtc1/sc22/wg9/n542.doc), Meeting #66 Change of Venue Announcement

[N543](http://www.open-std.org/jtc1/sc22/wg9/n543.doc), Detailed Agenda, Meeting #66 of ISO/IEC JTC 1/SC 22/WG 9, Friday 27 June 2014

1. Polydivisble number:: 3816547290 [↑](#footnote-ref-1)