# ISO/IEC JTC1/SC22/WG9 N 558

### Meeting Minutes

### *Revision 1, 16 Oct 2015*

### Meeting #69 of ISO/IEC JTC 1/SC 22/WG 9

**Friday 16 Oct 2015 in Bennington, VT**

In accordance with Resolution 68-4, the next meeting, meeting #69, of WG 9 was held onn the morning of Friday 16 Oct 2015 in Bennington, VT. The meeting began at 9:15 AM EDT.

The detailed agenda was circulated as [N557](#N557).

### AGENDA

[Opening Orders](#Opening), Meeting Convenor

[Introductions and Reports](#NBs)

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[Convenor's Report](#Convenor)

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

* IS 8652: Jeff Cousins, 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)](#Rapporteurs)

* 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)

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Recess

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### Opening Orders, Joyce Tokar, Meeting Convenor

* Call to Order
* Appointment of Meeting Secretary
* Welcome and Administrative Arrangements
* Approval of the [Agenda](#Agenda)
* Approval of [N553](#N553): Meeting #68 Minutes. Resolution [69-1](#r1).

[AGENDA](#A1)

**Introductions**

### Canada – Brad Moore, Stephen Michell

### Italy – Tullio Vardanega – will try to join by telecon

I have nothing to offer in the way of reporting, other than a request for guidance on the voting required for ISO/IEC 8652:2012/CD Cor 1, which is Ada's Technical Corrigendum 1, due by 6 December.

**Portugal –** Luis Miguel Pinho (apologies)

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

The main focus of the technical work being developed continues to be in the parallelism extensions being proposed for Ada.

**Spain –** Juan Antonio de la Puente

16 October, 2015

There has been no significant activity in the period from the last WG9 meeting.

The Spanish delegation for this meeting of WG 9 is Juan de la Puente (HOD), who will participate via WebEx.

### Switzerland – Patrick Gautschi (apologies)

### UK – Jeff Cousins

There has been some publicity about Ada due to the 200th Anniversary of Ada’s birth.

**USA –** Tucker Taft, Randy Brukardt

**Liaisons –** Erhard Ploedereder

**Guests –**

**Liaison Reports**

**Ada-Europe Liaison Report:**

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

Ada-Europe Liaison Report to WG9 for meeting #69 Ada-Europe Liaison Representative, Dirk Craeynest

Ada-Europe would like to inform the WG9 convener that it will send a 1-person Ada-Europe liaison delegation to Meeting #69 in Bennington, Vermont, USA, on Friday 16 October 2015.

The delegation consists of:

- Erhard Ploedereder (presenter)

The next Ada-Europe conference [1] will be held on June 13-17, 2016, in Pisa, Italy, and we reconfirm our usual hospitality agreement for WG9, ARG and HRG, as well as for WG23.

The next Real-Time Ada Workshop [2] (IRTAW-18) will be held on April 11-13, 2016, in Benicàssim, Spain, and is organized in cooperation with Ada-Europe. The Calls for Papers for both events are available on their respective web sites.

Although no firm decisions have been taken yet, we are expecting the Ada-Europe 2017 conference to be organized in Vienna, Austria. Very busy organizing this conference presently.

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.

Finally, the status of the Ada User Journal (AUJ) remains healthy. Four issues are published each year with, apart from the traditional Quarterly News Digest, Conference Calendar and Forthcoming Events sections, several articles, material from the industrial track and tutorials of the Ada-Europe conference, proceedings of workshops which took place at Ada-Europe conferences, etc. To commemorate the Bicentennial anniversary of Ada Lovelace Ada-Europe also continues the series of articles on Ada Lovelace in the AUJ issues during 2015.

**SIGAda Liaison Report:**

**SIGAda Liaison Representative, David Cook**

Since June, no significant changes to SIGAda have occurred. As mentioned in June, the decision was made not to hold a 2015 conference, so the SIGAda Executive Committee is the planning stages for a workshop on Model-Based Development and Contract-Based Programming. This workshop is tentatively scheduled for late Spring or Summer, 2016, tentatively in Huntsville, AL.

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

Since the last WG9 meeting, WG23 has met several times by telecons and face-to-face-meetings.

In Madrid, the face-to-face meeting was concurrent to the ARG meetings on Friday and Saturday, 26 and 27 June 2015. We clarified our reaction to a few known comments on FDIS 17960, Code Signing. The core TR 24772 was briefly addressed, the main work focused on the annexes which are now independent Parts of the Standard. The Python Annex was reviewed. We also examined at some length the initial draft of the C++-Annex, produced by MISRA-representatives. Florian Schanda was present to discuss the Spark-Annex with WG23 and some additional vulnerabilities at fine levels of detail. The cross-reference between JSF and TR 24772 was reviewed.

There was a two-hour telecon on August 3, resolving comments on FDIS 17960 and finishing some of the business left by the Madrid meeting.

A face-to-face meeting took place in Washington DC on September 17 and 18 at the offices of INCITS. The main work item of the meeting was to review and polish the C-Annex of the TR. Interestingly, the meeting was unexpectedly attended by a Chinese representative and by a three member delegation from South Korea. We scanned the status of annexes and spent most of the time on the revised C Annex.

Between meetings, communication was reestablished with the C++ group, caused by the information that WG23 is producing a C++ Annex with or without WG21 participation. WG21 has worked on a document of tool requirements targeted at the identification of vulnerabilities. The C++ group expects that much of what a C++ Annex would cover is also covered by this Technical Specification, TS 17961.

In addition, a document called the C++ Core Guidelines supposedly has been announced at Cppcom by now. These guidelines are claimed to bring together what individual groups have come up with so far in terms of guidelines. (One might doubt this statement, since there is clearly a disagreement between WG21 and the Misra-C++ proponents of what constitutes a vulnerability and what needs to be avoided.) How far the document will go to provide rationale for the rules, as the WG23 documents usually do, remains to be seen. Notwithstanding a certain degree of skepticism, it still seems like the C++ group is no longer adamantly opposed to discuss vulnerabilities in the open.

A meeting with SC27 (Security) in New Delhi was postponed to some more opportune place, as very few people could commit to the travel costs.

The next telecon is scheduled for October 21st.

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

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

The technical content of the next revision of Fortran, to be known informally as Fortran 2015, was decided at the SC22/WG5 meeting in London during 3-7 August 2015.

The details are in WG5 paper N2082, which in turn refers to other WG5 papers, and PL22.3 (formerly J3) papers. WG5 papers are available from http://www.nag.co.uk/sc22wg5/docs.html. J3 papers are available from http://j3-fortran.org/doc/year. J3 papers' file names begin with a year and a hyphen.

The WG5 paper for ISO/IEC TS 18508 is N2027.

The WG5 paper for ISO/IEC TS 29113 is N1942.

The next three meetings of PL22.3 (12-16 Oct, 8-12 Feb, 6-10 Jun) will be devoted to proofreading the draft of ISO/IEC 1539-1. We hope to forward it to ISO for publication in 2016.

Suggestions for a revision of subclause B.5 of ISO/IEC 8652:2012, concerning Fortran interoperability, have been forwarded to Tucker Taft.

[AGENDA](#A3)

### Convenor's Report Activities since the Last Session

The Convenor provided the yearly report to ISO/IEC JTC 1/SC 22 on the status of the work in WG 9; this report is available as [N554](#N554).

The Convenor participated, virtually, in the ISO/IEC JTC 1/SC 22 meeting. During this time, WG 9 formerly requested that the ballot for the publication of the Corrigendum for Ada 2012 be conducted. SC 22 15-11 instructed the SC 22 Secretariat to conduct a 3 month ballot on the approval of the Technical Corrigendum. This process is a little different from what has been done in the past, as the resolution had to be presented at the SC 22 meeting rather than by email, which is what we have done before. In addition, a new project, ISO/IEC 8652:2012/NP Cor 1, was initiated by ISO for the TC.

Assuming the vote is for approval, the corrigendum will be published following this ballot cycle; Dec 2015 time frame. However, if there are disapprovals, then WG 9 needs to be prepared to respond and request another ballot, if necessary.

SC 22 acknowledged Robert’s contribution to the software standards:

**Appreciation B: Robert Dewar**

It is with sadness that JTC 1/SC 22 notes the passing of Robert Dewar in June 2015 at the age of

71. Robert was a giant in the WG 9 Ada community, working in that group for more than 30

years. He was a significant force in the early development and continuing success of the Ada

Programming Language.

JTC 1/SC 22 wishes to express its condolences to Robert’s family.

### Meeting Objectives

The major objectives for this meeting are:

1. (highest priority) Respond to Defect Reports and/or Ada Issues on ISO/IEC 8652;
2. WG 9 Meetings
3. Updating the Ada Conformity Assessment Test Suite to be in alignment with the new revision of the standard (ISO/IEC 8652:2012)
4. Update to the Ada and SPARK Annexes to the WG 23: Vulnerabilities Guidelines Type III Technical Report;
5. Develop Technical Reports or Standards improving the Ada libraries;
6. Consider proposals for extending the language;

### Project Editor Reports

### ISO/IEC 15291 (ASIS)

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

### 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 so far (posted by 12 October 2015) generated 170 Ada Issues (AIs), with 8 more in the process of being posted.

The ARG met in Madrid in June 2015, following a WG 9 meeting which had approved the AIs for the 2015 Corrigendum and the Corrigendum itself, and directed the ARG to next produce an amendment.

The first part of the meeting was a joint meeting with the HRG and WG 23, to discuss the Ada annex of WG 23’s Vulnerabilities report.

Four regular and three amendment AIs were not discussed as they were awaiting action completion, though none of these are high priority.

All but two of the other ten regular AIs were approved with changes, the two (both low priority) requiring further investigation.

Having now been directed to produce an amendment, most of the amendment AIs were discussed. Most were either assigned no action or require further investigation, but a couple were approved with changes (61 and 86) and a few had their intent approved (59, 64 & 156). As one might expect for a mature language, there does not appear to be a pressing need for many further changes.

As of 12 October 2015, 99 AIs had been approved by WG 9, 10 by the ARG but not yet by WG 9, and 33 are work items for discussion at the ARG. Of the 33, 6 are binding interpretations and 27 are candidates for the Ada 2018 amendment. (There are also 2 issues which are deemed to be “promising” for the Ada 2018 amendment).

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

AI12-0061-1/05 2015-08-07 -- Index parameters in array aggregates

AI12-0086-1/04 2015-07-13 -- Aggregates and variant parts

AI12-0155-1/08 2015-07-30 -- Freezing of an incomplete view has no effect

AI12-0160-1/02 2015-08-07 -- Adding an indexing aspect to an indexable container type

AI12-0162-1/03 2015-07-30 -- Memberships and Unchecked\_Unions

AI12-0165-1/04 2015-10-13 -- Operations of class-wide types and formal abstract subprograms

AI12-0166-1/03 2015-08-07 -- External calls to protected functions that appear to be internal calls

AI12-0167-1/03 2015-08-07 -- Type\_Invariants and tagged-type View Conversions

AI12-0168-1/02 2015-07-07 -- Freezing of generic instantiations of generics with bodies

AI12-0169-1/02 2015-07-08 -- Aspect specifications for entry bodies

Work on the ASIS standard remains paused.

Future meetings are scheduled for 16-18 October 2015 in Bennington, Vermont, U.S.A., and provisionally for 11-13 June 2016 in Pisa, Italy, in conjunction with the Ada-Europe 2016 conference.

Continuation of the ARG: Resolution [69-2](#r2).

Approval of AIs: Resolution [69-5](#r5).

**Rapporteur Report HRG:**

Work on the Ada annex for the Vulnerabilities report is ongoing. This action should be completed by Meeting #70 of WG9.

Continuation of the HRG: Resolution [69-3](#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 67-1**

The WG 9 Convenor will get in touch with the IRTAW leadership to encourage the development of preliminary parallelism proposals that may be used to develop at parallelism TS. And to discuss cooperating with Ada Europe 2016.

*Status:* Closed

*Discussion:* This item will be part of the agenda for the WG 9 meeting at Ada Europe 2016, Meeting #70.

**Action Item 68-1:**

Tucker Taft will look into AdaCore having the resources to update TR 15942 and report back at meeting #69 (Oct 2015).

*Status:* Closed

*Discussion:* Cyrille Comar has indicated significant enthusiasm for doing this revision. AdaCore will commit some resources to update this report. The question is what is the next step?

The document needs to be updated to be in alignment with Ada 2012. In addition, analysis technologies have developed significantly since the original report was written. The HRG will be tasked with working with AdaCore to develop a plan for the update of TR 15942.

**Action Item 68-2:**

Steve Michell will report back to WG 9 at meeting #69 (Oct 2015) with respect to development and content of the SPARK Part.

*Status:* Open

*Discussion:* Steve has been trying to coordinate with Florian to determine what is possible in this area. Steve will work with Tucker to get together with Florian. Steve will report back at meeting #70 on the progress here.

**Action Item 68-3:**

Tucker Taft will inform Altran of ISO/IEC JTC 1/SC 22/WG 9’s interest in supporting ISO efforts for SPARK and will report back to WG 9 at meeting #69 (Oct 2015).

*Status:* Closed

*Discussion:*  SPARK is no longer an Altran product. It is really an AdaCore product; Altran is a user of the technology. So, the question has been asked of the AdaCore community. The answer was no, not at this time, as SPARK is changing too much at this time. Perhaps in a year or two, AdaCore will be ready to move forward with the standardization of SPARK.

[AGENDA](#AA)

### Committee as a Whole

### Guidance on the voting required for ISO/IEC 8652:2012/CD Cor 1

The ISO/IEC JTC 1/SC 22 ballot on the Technical Corrigendum for Ada 2012 is currently underway. What is the recommended guidance from WG 9 on the approval/disapproval of this ballot?

Encourage members of WG 9 to recommend to their standards organization that the Technical Corrigendum be approved.

### Unfinished Business

### New Business

### Scheduling of Future Meetings

The next meeting of WG 9, Meeting #70, will be held in conjunction with the [21st International Conference on Reliable Software Technologies Ada-Europe 2016](http://www.ada-europe.org/conference2016), on the afternoon of Monday 13 June 2016 in Pisa, Italy.

The next meeting of WG 9 will be held in conjunction with <TBD> on <TBD> in <TBD>. (See Action Item 69-3).

Resolution [69-4](#r4)

[AGENDA](#AC)

**Administrative Actions**

#### Resolution 69-1:

The minutes of Meeting #68 contained in document [N553](#N553) are approved.

*This resolution passed unanimously.*

##### Resolution 69-2:

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.

Jeff Cousins is appointed as Rapporteur.

The membership of the ARG is designated to be: Steve Baird, John Barnes, Randy Brukardt, Alan Burns, Jeff Cousins, Gary Dismukes, Robert Duff, Pascal Leroy, Brad Moore, Erhard Ploedereder, Jean-Pierre Rosen, Florian Schanda, Ed Schonberg, Tucker Taft, and Tullio Vardanega.

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.

*This resolution passed unanimously.*

##### Resolution 69-3:

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.

Alan Burns is continued as Rapporteur.

The membership of the HRG is designated to be: Steve Baird, John Barnes, Patrick de Bondeli, Alan Burns, Rod Chapman, Gary Dismukes, Bob Duff, Michael Gonzalez Harbour, Stephen Michell, Brad Moore, Miguel Pinho, Erhard Ploedereder, Juan Antonio de la Puente, George Romanski, Jean-Pierre Rosen, S. Tucker Taft, Joyce Tokar, Tullio Vardanega, and Brian Wichmann.

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.

*This resolution passed unanimously.*

##### Resolution 69-4:

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

Meeting #70, in conjunction with the [21th International Conference on Reliable Software Technologies Ada-Europe 201](http://www.ada-europe.org/conference2016)6, on the afternoon of 13 June 2016 in Pisa, Italy.

Meeting #71 in conjunction with <TBD> on <TBD> in <TBD>.

*This resolution passed unanimously.*

#### Review of New Action Items

**Action Item 69-1**: Alan Burns will provide the status of the development of an update to the Technical Report TR 24718 (Guide for the Use of the Ravenscar Profile in High Integrity Systems) to incorporate any changes, e.g., IRTAW, SPARK, at the next WG 9 meeting, Meeting #70.

**Action Item 69-2**: The HRG (Alan Burns) will work with AdaCore to develop a plan to update TR 15942 and present this plan at the next WG 9 meeting, Meeting #70.

**Action Item 69-3**: Tucker Taft will work with SIGAda to inform WG 9 of the plans for the next meeting of SIGAda no later than 1 Dec 2015.

[AGENDA](#AD)

### Review of New Resolutions

**Resolution 69-5:**

AI12-0061-1/05 2015-08-07 -- Index parameters in array aggregates

AI12-0086-1/04 2015-07-13 -- Aggregates and variant parts

AI12-0155-1/08 2015-07-30 -- Freezing of an incomplete view has no effect

AI12-0160-1/02 2015-08-07 -- Adding an indexing aspect to an indexable container type

AI12-0162-1/03 2015-07-30 -- Memberships and Unchecked\_Unions

AI12-0165-1/04 2015-10-13 -- Operations of class-wide types and formal abstract subprograms

AI12-0166-1/03 2015-08-07 -- External calls to protected functions that appear to be internal calls

AI12-0167-1/03 2015-08-07 -- Type\_Invariants and tagged-type View Conversions

AI12-0168-1/02 2015-07-07 -- Freezing of generic instantiations of generics with bodies

AI12-0169-1/02 2015-07-08 -- Aspect specifications for entry bodies

These AIs are hereby approved by WG9.

*This resolution passed unanimously.*

[AGENDA](#AD)

### Final Consideration of Resolutions

#### Appreciation

**Resolution 69-6:**

ISO/IEC JTC 1/SC 22/W 9 expresses its grateful appreciation to AdaCore and Jenny Dewar for their gracious accommodations for Meeting #69.

*This resolution passed unanimously.*

**Resolution 69-7:**

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.

*This resolution passed unanimously.*

##### Resolution 69-8:

ISO/IEC JTC 1/SC 22/W 9 expresses its grateful appreciation to Tucker Taft for acting as secretary for Meeting #69.

*This resolution passed unanimously.*

##### Resolution 68-9:

ISO/IEC JTC 1/SC 22/WG 9 expresses its grateful appreciation to Joyce Tokar for convening Meeting #68.

*This resolution passed unanimously.*

[AGENDA](#AF)

Recess –

The meeting ended at 10:40. The Convenor recessed the meeting subject to her call. ISO/IEC JTC 1/SC 22/WG 9 designated experts 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 8652:2012](http://www.iso.org/iso/home/store/catalogue_ics/catalogue_detail_ics.htm?csnumber=61507) Information Technology--Programming Languages—Ada

[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

[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), Convenor'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), Convenor 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), Convenor'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

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