# ISO/IEC JTC1/SC22/WG9 N 570

### Meeting Minutes

### Meeting #71 of ISO/IEC JTC 1/SC 22/WG 9

**Saturday 8 October 2016 in Pittsburgh, PA, USA**

In accordance with Resolution 70-4, the next meeting, meeting #71, of WG 9 was held the morning of Saturday 8 October 2016 in Pittsburgh, PA in conjunction with [ACM HILT 2016](http://www.sigada.org/conf/hilt2016/).

### AGENDA

[Opening Orders](#OO), Meeting Convenor

[Introductions and Reports](#RnI)

[Liaison Reports and Introductions](#Liaisons)

* [Ada Europe](#AdaEurope): Dirk Craeynest
* [SIGAda](#SIGAda): David Cook
* [WG 23](#WG23): Erhard Ploedereder
* [Fortran](#FORTRAN): Van Snyder

[Convenor's Report](#Convenor)

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

* [IS 8652](#IS8652): Jeff Cousins, Ed Schonberg, and Randy Brukardt
* [IS 15291](#ISO15291): Bill Thomas and Greg Gicca
* [TR 15942](#TR15942): Ben Brosgol
* [IS 18009](#ISO18009): Erhard Ploedereder
* [TR 24772-2](#TR24772): Joyce Tokar

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

* [Report of Ada Rapporteur Group](#ARG): Jeff Cousins, Chair
* [Report of Annex H Rapporteur Group](#HRG): Alan Burns, Chair

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

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Recess

### Opening Orders

Call to Order

Appointment of Meeting Secretary

Welcome and Administrative Arrangements

Approval of the [Agenda](#Agenda)

Approval of [N562](#N562): Meeting #70 Minutes.

### Reports and Introductions

### Canada – Brad Moore (HOD)

### Italy – Tullio Vardanega (HOD)

### Portugal – Luis Miguel Pinho (HOD)

### Spain – Juan Antonio de la Puente (HOD)

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 Antonio de la Puente (HOD), to participate by teleconference.

### Switzerland – Nicholas Kaethner (HOD)

### UK – Jeff Cousins (HOD)

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

John Barnes’ article on the Technical Corrigendum was published in the Ada User Journal.

The UK delegation is Jeff Cousins (HOD) and Florian Schanda for this meeting of WG 9.

### USA – Randy Brukardt, Tucker Taft, Ed Schoenberg, Joyce Tokar

### Liaison – Erhard Ploedereder

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### Liaison Reports and Introductions

**Ada Europe –** Dirk Craeynest

Ada-Europe Liaison Report to WG9 for meeting #71

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 #71 in Pittsburgh, Pennsylvania, USA, on Saturday 8 October 2016.

The delegation consists of:

- Erhard Ploedereder (presenter)

The 21st International Conference on Reliable Software Technologies - Ada-Europe 2016 [1], took place at Scuola Superiore Sant'Anna, in Pisa, Italy. The conference was successful for finance and for contents, and good for attendance.

As usual, the conference week provided a very successful program of technical presentations, as well as a fruitful networking environment. The week had a scientific program with 12 high-quality papers (of 28 submitted), an industrial track with 8 high-quality presentations, 8 tutorials on Monday and Friday, and the co-located DeCPS workshop also on Friday. The conference also featured 3 keynote talks: from Alan Burns, on programming languages for future cyber-physical systems; Guido Ghisio, responsible for Automated Driving Technologies at Magneti Marelli, Italy, on challenges for the automotive platform of the future; and Marc Duranton, senior member of CEA, France, on the HiPEAC (European Network on High Performance and Embedded

Architecture and Compilation) vision. A highlight of this year's conference was a Special Session on Ada and Parallelism. The session included 2 presentations from Tucker Taft and Brad Moore, and a discussion moderated by Jeff Cousins.

[1] http://www.ada-europe.org/conference2016

The next Ada-Europe conference [2] will be held on June 12-16, 2017, in Vienna, Austria. The Preliminary Call for Papers is available on the events' web site and is being distributed widely.

We reconfirm our usual hospitality agreement at Ada-Europe 2017 for WG9, ARG and HRG, as well as for WG23, and are willing to help logistically in so far as local resources can.

The Ada-Europe Board expresses a marked preference for the "traditional" scheduling of those meetings, i.e. WG9 on the Friday morning of the conference week, followed by ARG from that same Friday afternoon until Sunday; and prefers no overlapping of the WG23 meeting with the core conference program from Tuesday to Thursday.

[2] http://www.ada-europe.org/conference2017

Although no firm decisions have been taken yet, we are expecting the Ada-Europe 2018 conference to be organized around mid-June 2018 in Lisbon, Portugal.

We reconfirm our willingness to support the Ada standardization related activities.

Ada-Europe is happy to report a healthy situation with the Ada User Journal (AUJ) [3]. Four issues are published each year. A special mention to the publication of an article by John Barnes, explaining the rationale for the changes in the Technical Corrigendum 1 to ISO/IEC 8652:2012. The Journal also continues printing the industrial track of the Ada-Europe conference, as well as reprinting the summaries of the International Real-Time Ada Workshops. This year, the Journal also provided the proceedings of the special session on Ada and Parallelism, which took place at Ada-Europe 2016, and plans the publication of the proceedings of the Workshop on Challenges and New Approaches for Dependable and Cyber-Physical Systems Engineering (DeCPS 2016), co-located with Ada-Europe 2016. The AUJ also continues with its traditional Quarterly News Digest, Conference Calendar and Forthcoming Events sections.

[3] http://www.ada-europe.org/auj

**SIGAda –** Tucker Taft

The [ACM HILT 2016](http://www.sigada.org/conf/hilt2016/) workshop was successful. Approximately thirty people attended. The proceedings will be in Ada Letters.

**WG 23 –** Erhard Ploedereder

Since the last WG9 meeting in Pisa, WG23 has met in one 2-hour teleconference and two face-to-face-meetings. The main subject of the work of WG23 over the past four months has been the Vulnerabilities document TR-24772, now split into 8 parts, and specifically Part 1, the language-independent Part. Some time was spent on the C and Ada Parts as well.

At the face-to-face meeting in Pisa, Italy, June 14th + 15th, several vulnerabilities in Part 1 were discussed and wordings were refined. Also, section 7, which never has undergone an attempt at putting the sections into a logical order, was examined for possible alternative sequences of the individual vulnerabilities. This work had been initiated at the meeting in London. Since then, a multi-faceted categorization had been established and section 7 reorganized accordingly for better grouping and flow of content. The reordering does not affect the language-specific Parts, since, by definition and design, section 7 discusses language-independent vulnerabilities. Also, a draft of the revised C Part was reviewed; it is hoped that WG14 will pass the revised version at its Toronto meeting in April 2017.

The TeleCon on Aug 15th mainly served to review the most recent comments on the Ada Part and assist Joyce Tokar in formulating resolutions to these comments.

At the face-to-face meeting at the Austrian Standards offices in Vienna, September 15th and 16th, details of several revised sections in Part 1 were reviewed and improved. Aspects of the C Part were discussed. General plans for the time table of the WG23 work were made so that work on the Parts not yet in motion could begin and fit within the projected schedule. Particularly the process to arrive at an updated Spark Part was discussed. It was tentatively decided that the general contents of the next edition of Part 1 should be finalized by late Spring of 2017 with wordsmithing going on before the next standardization cycle at the end of 2017.

In the next few months, the bi-monthly TeleCons will continue. Face-to-face meetings are planned for the USA in January and Toronto, Canada, in April of 2017.

WG23 thanks WG9 for its efforts in updating the old Annex to become Part 2 of TR-24772 and expresses its hopes to receive the document from WG9 after its meeting in Pittsburgh

**Fortran, INCITS/PL22.3** – Van Snyder (apologies)

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

The former Convenor provided the yearly report to SC 22; this document is available as [N564](#N564).

**Meeting Objectives**

Get Pat Rogers up to speed as the new Convenor.

Provide guidance to the ARG on what needs to be done.

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### Project Editor Reports (as needed)

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

### IS 15291 (ASIS) (Bill Thomas, Greg Gicca)

**TR 15942 (Guidance for the Use of Ada in High Integrity Systems)** (Ben Brosgol)

The text for the original report has been extracted from the pdf and converted into the format that will be used for the revised version. Setting up to use a GIThub repository for the revision process. The plan is to have an initial release of the revised report available at Ada-Europe 2017 in Vienna next June.

### IS 18009 (Conformity Assessment of an Ada Language Processor) (Erhard Ploedereder)

IS 18009 project editor report: No activities to be reported.

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

**TR 24772-2 (Guidance to avoiding vulnerabilities in programming languages – Vulnerability descriptions for the programming language Ada)** (Joyce Tokar)

The first draft of the complete TR24772-2 was distributed for technical review in July 2016. The reviewers from WG 9 did an excellent job of evaluating the document and responded with 115 comments. The editor revised the document per the comments received.

The new version was distributed to WG 9 committee by the Convenor for a ballot vote to approve forwarding the document to WG 23 as the Ada Part at the beginning of September 2016. The results of the vote were 9 approvals to forward the document and 1 reject with 50 comments. After reviewing the comments from the rejection, the editor deemed that these were important and needed to be addressed prior to forwarding the document to WG 23.

A revised version of the document that addressed the 50 comments raised was distributed to WG 9 with the request to conduct a ballot to approve forwarding this document to WG 23 at the Oct 2016 WG 9 meeting. In the interim, one issue was identified and there has been a recommendation for another modification to the document. This modification was made and a new version of the document was sent out to the WG 9 membership on 2 Oct 2016. This latest version is the one that would be submitted to WG 23 upon approval from WG 9.

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### Rapporteur Group Reports (as needed)

**Rapporteur Report ARG**

The Ada 2012 standard has so far (posted by 27 September 2016) generated 201 Ada Issues (AIs).

The ARG met in Pisa, Italy in June 2016, followed by a WG 9 meeting which approved eleven AIs.

Two regular and five amendment AIs were not discussed as they were awaiting action completion, and five amendment AIs were not discussed as they were expected to end up as no action.

Twelve regular AIs were approved (most with minor changes) and four just had their intent approved (all of low priority).

Three amendment AIs were approved (two with minor changes), six had their intent approved, five require further investigation, two were deferred and two were closed as no action.

Improving iteration over containers was a major area of discussion. Parallelism is expected to be an important area of new work, and was much discussed at the subsequent Ada-Europe conference.

As of 27 September 2016, 121 AIs had been approved by WG 9 (100 having already made it into the Corrigendum), 14 by the ARG but not yet by WG 9, and 34 are work items for discussion at the ARG. Of the 34, 1 is a ramification, 9 are binding interpretations and 24 are amendments. (There is also an AI on presentation).

A number of AIs are nearing completion of editorial review and will be ready for approval by WG 9. The final version numbers will be provided at the meeting. The list follows. As usual, the full text of the AIs can be found at [www.ada-auth.org/ais.html](http://www.ada-auth.org/ais.html).

AI12-0002-1 -- RCI units do not allow specification of user-defined stream-oriented attributes

AI12-0125-3 -- Add @ as a abbreviation for the LHS of an assignment

AI12-0128-1 -- Exact size access to parts of composite atomic objects

AI12-0140-1 -- Access to unconstrained partial view when full view is constrained

AI12-0170-1 -- Abstract subprogram calls in class-wide precondition expressions

AI12-0180-1 -- Using protected subprograms and entries within an invariant

AI12-0181-1 -- Self-referencing representation aspects

AI12-0182-1 -- Pre'Class and protected operations

AI12-0184-1 -- Long Long C Data Types

AI12-0185-1 -- Resolution of postcondition-specific attributes

AI12-0192-1 -- "requires late initialization" and protected types

AI12-0194-1 -- Language-defined aspects and entry bodies

AI12-0195-1 -- Inheriting body but overriding precondition or postcondition

AI12-0198-1 -- Potentially unevaluated components of array aggregates

Work on the ASIS standard remains paused.

Future meetings are scheduled for either 10-12 or 16-18 June 2017 in Vienna, Austria, in conjunction with the Ada-Europe 2017 conference.

**Rapporteur Report HRG**

HRG is currently involved in three activities.

1) The production of the Ada Part for the vulnerabilities report (of WG23). A complete draft has been produced and is currently out for approval to WG 9. Once approval has been given then it will be forwarded to WG 23. Joyce Tokar is the editor of the Ada Part.

2) The ISO technical report on Ravenscar (TR 24718) is currently being updated. Aim to complete update by next meeting of WG 9. Alan Burns is the editor of this report.

3) The ISO technical report on the Use of Ada in High Integrity Systems (TR 15942) is currently being updated. Aim to produce a timetable for completion by next meeting of WG 9. Ben Brosgol is acting as editor of this report.

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**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 70-3**: Alan Burns and Tullio Vardanega will produce an update to TR 24718, Guide for the use of the Ada Ravenscar Profile in high integrity systems, for review at the WG 9 meeting #72 associated with Ada Europe 2017.

**Action Item 70-4**: Ben Brosgol will produce an initial draft update to TR 15942, Guide for the use of the Ada programming language in high integrity systems, for review at the WG 9 meeting #72 associated with Ada Europe 2017.

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### Committee as a Whole

Progression of TR 24772-2 (voted and approved)

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### Unfinished Business

None.

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### New Business

**JTC 1 Limitation on Time and Number of Technical Corrigenda**

JTC 1 intends to limit the number of corrigenda to a total of two per edition of a standard, over a total period of three years. SC 22 has proposed a response urging JTC 1 to work with ISO to come up with an alternative that removes the limitation on time and number of technical corrigenda.

WG 9 does not expect this to be a problem for us.

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### Scheduling of Future Meetings

We will follow the normal schedule at the next Ada Europe 2017 meeting, i.e., after Ada Europe. The subsequent meeting may be in Houston, in Jan/Feb 2018 timeframe, or in Boston.

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**Review of New Action Items**

**Action Item 71-1:** Florian Schanda will provide a draft for the SPARK Part of TR-24772 in March 2017, with a final version expected by June 2017.

**Action Item 71-2**: The ARG will recommend a program of work to WG 9 prior to the next WG 9 meeting.

**Action Item 71-3**: The Ada Part of TR 24772-2 will move forward to WG 23.

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**Final Consideration of Resolutions**

**Resolution 71-1:** The meeting minutes formeeting 70 are approved.

**Resolution 71-2:**

The Ada Issues presented by the ARG are approved, with the exception of AI12-0125. AI12-0125 will be discussed further within the ARG.

*This resolution passed unanimously.*

**Resolution 71-3:**

TR 24772-2 will be moved forward to WG 23.

*This resolution passed unanimously.*

**Resolution 71-4:**

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, he shall consult with the Rapporteur and the National Body or Liaison Organization nominating the member.

Rapporteurs are permitted to allow other individuals to observe the deliberations of the Rapporteur Group. The admission of observers and the extent of participation permitted to observers are at the discretion of the Rapporteur with the concurrence of the membership of the Rapporteur Group.

*This resolution passed unanimously.*

**Resolution 71-5:**

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: Raphaël Amiard, 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, he shall consult with the Rapporteur and the National Body or Liaison Organization nominating the member.

Rapporteurs are permitted to allow other individuals to observe the deliberations of the Rapporteur Group. The admission of observers and the extent of participation permitted to observers are at the discretion of the Rapporteur with the concurrence of the membership of the Rapporteur Group.

*This resolution passed unanimously.*

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### Appreciation

**Resolution 71-6:**

ISO/IEC JTC 1/SC 22/W 9 expresses its grateful appreciation to Tucker Taft for his help in coordinating the WG 9 meeting in combination with [ACM HILT 2016](http://www.sigada.org/conf/hilt2016/).

*This resolution passed unanimously.*

**Resolution 71-7:**

ISO/IEC JTC 1/SC 22/WG 9 expresses its grateful appreciation to Pat Rogers for convening Meeting #71 and for taking on the role of convenor for WG 9.

*This resolution passed unanimously.*

**Resolution 71-8:**

ISO/IEC JTC 1/SC 22/WG 9 expresses its grateful appreciation to Joyce Tokar for many years of dedicated service to the goals of WG 9.

*This resolution passed unanimously.*

**Resolution 71-9:**

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 71-10:**

ISO/IEC JTC 1/SC 22/W 9 expresses its grateful appreciation to Alok Srivastava for acting as secretary for Meeting #71.

*This resolution passed unanimously.*

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**RECESS**

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## 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 8652:2012/COR. 1:2016](http://www.iso.org/iso/home/store/catalogue_tc/catalogue_detail.htm?csnumber=69798), Technical Corrigendum to Information Technology – Programming Languages – Ada.

[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 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), Convenor'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, in 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.docx), Draft Detailed Agenda, Meeting #66 of ISO/IEC JTC1/SC22/WG9, Friday 27 June 2014

[N544](http://www.open-std.org/jtc1/sc22/wg9/n544.docx), Meeting Minutes, Meeting #66 of ISO/IEC JTC 1/SC 22/WG 9, Friday 27 June 2014, Virtual

[N545](http://www.open-std.org/jtc1/sc22/wg9/n545.pdf), Convenor's Report, 2013-14, ISO/IEC JTC 1/SC 22/WG 9 (Ada)

[N546](http://www.open-std.org/jtc1/sc22/wg9/n546.docx), Meeting #67 Announcement and Draft Agenda

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