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**Resolutions Prepared at the
Fifth Plenary Meeting SC22
Tampere (Ellivuori), Finland, August 24-28, 1992**

Resolution 206: Revised JTC1 Directives

ISO/IEC JTC1/SC22 notes the approval of a revision to the JTC1 Directives (document SC22/N1130) and instructs its working group conveners to operate in accordance with these Directives. In particular, attention is called to the following provisions:

- working group participants must be authorized by their National Body or liaison organization (1.5.2);
- work must be progressed in a timely manner (2.1.3.10, 2.1.3.11);
- an annex on portability considerations must, when applicable, be incorporated in standards (6.5.1.7);
- the CD ballot period may be extended (6.5.2.1);
- CD ballot resolution must occur within 3 months (6.5.2.5);
- standards must be periodically reviewed (6.11);
- meeting notices and agendas must be distributed preferably four months, but no later than three months in advance (3.5.4.2).

Resolution 207: Revised Version of the ISO/IEC JTC1/SC22 Programme of Work

ISO/IEC JTC1/SC22 approves the the SC22 Programme of Work specified in document SC22/N1212, with any editorial changes or corrections provided to the SC22 secretariat by working group conveners.

Resolution 208: Confirmation of ISO/IEC Standards and Technical Report

ISO/IEC JTC1/SC22 instructs the SC22 Secretariat to inform JTC1 that SC22 recommends that the following ISO/IEC standards and technical report be confirmed:

- ISO/IEC 8652:1987 Programming Language Ada
- ISO/IEC 6160:1987 Programming Language PL/I - ISO/IEC TR9547:1988 Test Methods for Programming Language Processors

Resolution 209: Encouragement of User Participation

ISO/IEC JTC1/SC22

- believes that input from users related to user requirements and priorities is of particular value at the project level;
- hence encourages the participation of users, preferably through national bodies, in the work of SC22,

- particularly in developing user requirements for SC22 standards; and
- invites user groups that span more than one country to seek category C liaison with SC22 working groups in accordance with the JTC1 directives.

Resolution 210: Annual Review of Status of SC22 Resolutions

ISO/IEC JTC1/SC22 instructs the SC22 Secretariat to add to the agenda of each SC22 Plenary meeting an item for the review of the status of those resolutions from the previous SC22 Plenary meeting for which actions are still outstanding.

Resolution 211: Russian Language Version of ISO/IEC 1539:1991 (Fortran)

ISO/IEC JTC1/SC22

- requests the SC22 Secretariat to consult with the Russian National body about the desirability of ISO/IEC publishing the existing Russian translation of ISO/IEC 1539:1991 (Fortran);
- instructs the SC22 Secretariat, if the Russian National Body concurs, to request ITTF to publish this Russian translation expeditiously and at minimal cost.

Resolution 212: Adoption of procedures for handling of Defect Reports

ISO/IEC JTC1/SC22 adopts document SC22/N1236 as its procedures for handling reports of defects or suspected defects in, and requests for interpretation concerning, documents for which it is responsible, in accordance with clause 6.13.3 of the JTC1 Directives.

Resolution 213: Ad Hoc Group on cross-language coordination

ISO/IEC JTC1/SC22, recognizing the need for a subcommittee policy on cross-language coordination, establishes a Cross-Language Coordination Ad Hoc Group, under the leadership of Mr Paul Rabin, and with the terms of reference specified in the document SC22/N1235:

- to draw up a Cross-Language Coordination Questionnaire to identify expected interactions between individual languages and cross-language standards, based on the draft in SC22/N1186, and to distribute it, by 30 September 1992, to all SC22 WG conveners;
- to make the responses to the Questionnaire available to the SC22 National Bodies as soon as possible in order that the results can be useful during ballots that occur before the 1993 SC22 plenary meeting;
- to develop a proposed policy for cross-language standard coordination;
- to identify the actions necessary to implement the proposed policy for each SC22 language; and
- to produce a report on its work and forward it to the SC22 secretariat by 31 May 1993 for distribution and for discussion at the 1993 SC22 plenary.

The membership of the Cross-Language Coordination Ad Hoc Group will include Ed Barkmeyer (USA), Ken Edwards (USA), Brian Meek (UK) and Willem Wakker (NL). The Ad Hoc Group is intended to work by e-

mail and correspondence.

Resolution 214: Cross-Language Coordination: Questionnaire

ISO/IEC JTC1/SC22

- instructs working group conveners to send completed responses to the Cross-Language Coordination Questionnaire in machine readable form to the address specified on the questionnaire, by 28 February 1993; and
- confirms that any responses will be treated as informative and not agreed WG policy, and that conveners are free to use whatever practical means they deem appropriate to complete the responses by the specified deadline.

Resolution 215: Cross-Language Coordination: external liaisons

ISO/IEC JTC1/SC22 instructs its Ad Hoc Group to send the following information to bodies outside SC22:

- an explanation of what SC22 is trying to accomplish by this exercise and how participation in it of their body can improve the work of both bodies;
- a request for any input they are able to provide which would assist the Ad Hoc Group in its work, including their responses to the relevant parts of the Cross-Language Coordination Questionnaire where appropriate, with the aim of advancing the cause of obtaining mutually satisfactory and useful standards;
- copies of the Cross-Language Coordination Questionnaire; and
- copies of the relevant CDs, as appropriate;

the bodies concerned being:

SC2;
SC7;
SC18;
SC21, with the response to their liaison request on APIs; SC21/WG3, for SQL and IRDS;
SC24;
ECMA, for PCTE
ANSI ASC X11, for MUMPS*

**Note: MUMPS is a trademark of Massachusetts General Hospital*

Resolution 216: Ad Hoc Meeting on Character Sets

ISO/IEC JTC1/SC22

- recognizes a need for the technical experts in its working groups to develop an understanding of IS 10646:1992, and related character set standards;

- recognizes that a better understanding of the concepts of *character* and *glyph* would be of value to SC22; therefore
- resolves that an ad hoc meeting on character sets will be arranged, with Mr Keith Hopper (NZ) as convener, the agenda to include the issues identified in SC22/N1239, with expert participation invited from SC2, SC18 and all working groups in SC22, to help SC22 WG experts to understand the content and implications of these standards related to the work of SC22.

Resolution 217: Internationalization Report to JTC1

ISO/IEC JTC1/SC22

- approves document SC22/N1237 as the basis of its response to Resolution 18j of the October 1991 JTC1 Plenary meeting;
- recognizes that additional facts regarding current activities may be added to the document and that general editorial corrections may be made to improve the document's clarity and consistency;
- authorizes its Chairman, or his designee, to carry out such changes and submit the revised response to JTC1.

Resolution 218: Appointment of Project Editors

ISO/IEC JTC1/SC22 appoints the following project editors:

- Mr William Klein (USA) for project JTC1.22.01.04: Correction amendment to ISO 1989:1985 COBOL (WG4);
- Mr Don Nelson (USA) for project JTC1.22.01.07: Revision of ISO 1989:1985 COBOL (WG4);
- Mr David Emery (USA) for project JTC1.22.26: Uniformity of Ada Implementations (WG9);
- Mr Marc Graham (USA) for project JTC1.22.31: Ada/SQL Interface (WG9);
- Mr Dominique Chandesris (France) for project JTC1.22.35: Ada Extensions and User Run Time Executive Interface (WG9);
- Mr Don Nelson (USA) for project JTC1.22.14: Binding techniques for programming languages (WG11);
- Ms Mary Payne (USA) for project JTC1.22.28: Language Independent Arithmetic, Part 1 (WG11);
- Mr Klaus Dässler (Germany) for project JTC1.22.22.02: Prolog: Part 2, Modules (WG17).

Resolution 219: Working Group Meetings

ISO/IEC JTC1/SC22

- notes the importance of the following working group meetings to the progress of the work, and that those likely to attend have had adequate notice of them; and hence

- approves the convening of these meetings even though three months notice has not been given to SC22:
 - WG11 - Bindings, Paris, 12-16 October 1992
 - WG13 - Modula-2, Delft, 21-25 September 1992
 - WG16 - Lisp, Boston, 9-11 October 1992
 - WG17 - Prolog, Copenhagen, 26-30 October 1992
 - WG20 - Internationalization, Quebec, 19-23 October 1992
 - WG21 - C++, Boston, 1-6 November 1992

Resolution 220: Reports on experience of language bindings

ISO/IEC JTC1/SC22 requests WG2 and WG13 to submit reports of their experiences of preparing language bindings to Language Independent Arithmetic Part 1.

Resolution 221: Resolution of ballot comments on ISO/IEC DIS 11756 - MUMPS*

ISO/IEC JTC1/SC22

- notes the ballot comments on ISO/IEC DIS 11756 - MUMPS contained in document SC22/N1182; and
- approves as resolution of these comments the responses contained in document SC22/N1234.

**Note: MUMPS is a trademark of Massachusetts General Hospital*

Resolution 222: Revision of MUMPS* standard

ISO/IEC JTC1/SC22 invites the US national body to submit the revision of ISO/IEC 11756 - MUMPS to JTC1 for fast-track processing when it becomes available.

**Note: MUMPS is a trademark of Massachusetts General Hospital*

Resolution 223: Primary Development Body for the International Fortran Standard

ISO/IEC JTC1/SC22

- notes that project JTC1 22.02.01, revision of ISO 1539:1980 (Fortran), was completed with the publication of ISO 1539:1991;
- authorises WG5 - Fortran to begin work on the next revision of the standard;
- notes and approves WG5's recommendation, expressed in resolution V9 in document SC22/N1214, that the work of revision be progressed by the US technical subcommittee X3J3 acting as primary development body for the next revision of ISO/IEC 1539:1991, provided that the X3 I-project rules are used for the project, and that such a project be established by June 30, 1993;
- requests the USA National body to take the necessary steps to arrange for this to be done.

Resolution 224: CD Registration of Technical Report on test methods for measuring conformity to POSIX

ISO/IEC JTC1/SC22 approves the CD registration of document SC22/N1180, and instructs the SC22 secretariat to initiate the CD balloting as soon as the WG15 conformance testing rapporteur group has provided a proposed resolution of the UK NP comments in document SC22/N1134 for inclusion in the balloting package.

Resolution 225: DIS Registration of CD 9945-2 POSIX: Shell and Utilities, incorporating the User Portability Extension amendment

ISO/IEC JTC1/SC22

- notes that the balloting positions of France, Denmark and New Zealand with respect to the amendment are affirmative;
- notes that the comments raised by Japan have been sufficiently addressed and that the Japanese ballot is also now affirmative;
- concludes that there is now substantial support of the P-members of SC22 for DIS registration of CD 9945-2 as proposed; and therefore
- approves the DIS registration of CD 9945-2, incorporating the changes shown in documents SC22/N1147 and SC22/N1148, merging the User Portability Extension with the main document.

Resolution 226: Approval of CD Registration for Prolog Part 1, General Core

ISO/IEC JTC1/SC22

- notes the ballot results in document SC22/N1205 on CD registration of the document SC22/N1133 - Prolog Part 1, General Core, and the late ballots in document SC22/N1210; and
- approves registration of the CD for Prolog Part 1, General Core.

Resolution 227: Subdivision of FIMS Work Item

ISO/IEC JTC1/SC22 endorses the subdivision of project JTC1.22.27, FIMS, in accordance with the descriptions in document SC22/N1154, as follows:

- JTC1.22.27.01 Forms Interface Management System (FIMS)
- JTC1.22.27.02 Addendum to FIMS - COBOL binding
- JTC1.22.27.03 Addendum to FIMS - Intermediate subset
- JTC1.22.27.04 Addendum to FIMS - Fortran binding
- JTC1.22.27.05 Addendum to FIMS - Ada binding.

Resolution 228: Subdivision of Work Item JTC1.22.29 - Vienna Development Method - Specification Language
ISO/IEC JTC1/SC22

- notes that WG19 is close to completing its work on the main language features to be defined in standard VDM-SL but that more work is required in defining a facility for modules;
- endorses the subdivision of the work item JTC1.22.29 - Vienna Development Method - Specification Language (VDM-SL) as follows:

JTC1.22.29.01 - VDM-SL: Part 1, Base Language
JTC1.22.29.02 - VDM-SL: Part 2, Modules.

Resolution 229: Subdivision of Work Item JTC1.22.30 -
Functionality for the internationalization of applications

ISO/IEC JTC1/SC22 endorses the subdivision of the work item JTC1.22.30 - Functionality for the internationalization of applications as follows:

JTC1.22.30.01 - Framework for internationalization for programming languages and their environments
JTC1.22.30.02 - Functionality for the internationalization of applications

Resolution 230: Assignment of work item JTC1.22.13 - Guidelines for the preparation of programming language standards

ISO/IEC JTC1/SC22 assigns to WG20 work item JTC1.22.13 for the purpose of producing a revised version of TR 10176:1991 - Guidelines for the preparation of programming language standards, the extent of the revision being confined to internationalization issues.

Resolution 231: Instructions for working groups using national body development

ISO/IEC JTC1/SC22 instructs those working groups which use national body development to revise their synchronization plans to be in accordance with the procedures specified in document SC22/N1236.

Resolution 232: New work item proposal on Pascal and extended Pascal bindings to language independent arithmetic

ISO/IEC JTC1/SC22 instructs the SC22 Secretariat to forward the new work item proposal (NP) in document SC22/N1172, with the title changed to *Pascal and extended Pascal bindings to language independent arithmetic*, to JTC1 for NP processing.

Resolution 233: New work item proposal on Z specification language

ISO/IEC JTC1/SC22

- instructs the SC22 Secretariat to forward the new work item proposal (NP) in document SC22/N1179R, with revised target dates and with the title changed to *Z specification language*, to JTC1 for NP processing;
- requests the UK national body meanwhile to produce additional information about the Z specification language and its relationship with VDM-SL, if possible in time to help JTC1 national bodies in determining their vote;
- if the NP is approved by JTC1, authorizes the establishment of a new SC22 working group, and invites the UK national body to consider providing the convener and secretariat for this group.

Resolution 234: New work item proposal for Technical Report on object-oriented extensions to Pascal

ISO/IEC JTC1/SC22

- instructs WG2 to revise its new work item proposal (NP) for Technical Report on object-oriented extensions to Pascal (document SC22/N1203) taking into account comments made on the title, type of technical report and target dates, and to forward the revised NP to the SC22 secretariat;
- instructs the SC22 secretariat then to forward the revised NP to JTC1 for NP processing.

Resolution 235: Forth

ISO/IEC JTC1/SC22

- requests the US member body to provide the most recent version of the proposed Forth standard to the SC22 secretariat for circulation to SC22;
- instructs the SC22 secretariat to conduct a consultative letter ballot on the suitability of this standard for fast track processing.

Resolution 236: New Work Item Proposal for FIMS

ISO/IEC JTC1/SC22

- instructs the convener of WG18 to prepare a New Work Item Proposal (NP) to develop FIMS device profiles that match OSI Virtual Terminal profiles, the NP to be based on document SC22/N1154 and to emphasize the liaison requirements to SC21;
- instructs the SC22 secretariat to submit this NP to JTC1 for balloting, with the recommendation that it be assigned to SC22 should it be approved.

Resolution 237: Revised Schedule for Lisp (WG16)

ISO/IEC JTC1/SC22, noting the substantial progress made by WG16 - Lisp, extends the deadline for progressing their work beyond stage 2 to 31 December 1992.

Resolution 238: Termination of Liaison with ISO/IEC JTC1/SC14

ISO/IEC JTC1/SC22

- notes the report from its liaison officer to ISO/IEC JTC1/SC14 in document SC22/N1093;
- in accordance with the recommendation contained therein, instructs its secretariat to inform the secretariat of ISO/IEC JTC1/SC14 that ISO/IEC JTC1/SC22 believes that formal liaison between the two subcommittees is not necessary, and to terminate the liaison;
- thanks Mr Klaus Appel for his services as SC22 liaison officer to ISO/IEC JTC1/SC14.

Resolution 239: Liaison with ISO/IEC JTC1/WG3

ISO/IEC JTC1/SC22

- notes that ISO/IEC JTC1/SWG-EDI has been disbanded and hence there is no further need for liaison with that group;
- thanks Mr Klaus Appel for his services as SC22 liaison officer to ISO/IEC JTC1/SWG-EDI;
- accepts Mr Appel's advice that there is no need at this time for liaison between SC22 and JTC1/WG3 - Open EDI.

Resolution 240: SC21 Liaison Statement

ISO/IEC JTC1/SC22 approves document SC22/N1238 as a liaison statement to JTC1/SC21, and instructs the SC22 Secretariat to forward it to JTC1/SC21.

Resolution 241: Liaison statements and reports

ISO/IEC JTC1/SC22 instructs its liaison representatives to circulate proposed liaison statements and reports to SC22 for comment, within three months, prior to sending them to the liaison organization.

Resolution 242: Category C liaison with X/Open for WG4

ISO/IEC JTC1/SC22, noting the report of the WG4 convener that Category C liaison with the X/Open COBOL working group would be beneficial to the work of SC22, authorizes the provisional participation of that group in the work of WG4, whilst the formal processes for establishing liaison are proceeding.

Resolution 243: Category C liaison with X/Open for WG20

ISO/IEC JTC1/SC22, noting the report of the WG20 convener that Category C liaison with the X/Open Internationalization working group would be beneficial to the work of SC22, authorizes the provisional participation of that group in the work of WG20, whilst the formal processes for establishing liaison are proceeding.

Resolution 244: Appreciation to M. François Genuys

ISO/IEC JTC1/SC22 expresses its warmest thanks and appreciation to M. François Genuys for his many years of service to SC22 and to SC5 (SC22's predecessor subcommittee) and for all that he has done to further the development and standardization of programming languages. SC22 extends to him its best wishes for a long and enjoyable retirement.

Resolution 245: Appreciation to M. Jean Bourgain

ISO/IEC JTC1/SC22 expresses its warmest thanks and appreciation to M. Jean Bourgain for his many years of service to SC22 and to SC5 (SC22's predecessor subcommittee) and working groups of those subcommittees, in particular to WG4 - COBOL. SC22 extends to him its best wishes for a long and enjoyable retirement.

Resolution 246: Appreciation

ISO/IEC JTC1/SC22 expresses its appreciation to all those who have assisted in the work of this meeting, and in particular,

- to the companies and institutions that sponsored the meeting, namely Canon (Pori), the Information Technology Development Centre TIEKE, the Finnish Standards Association SFS, the Finnish Information Processing Association, the Ministry of Trade and Industry, and Tampere University of Technology;
- to Ms Ulla Kokkonen and Ms Marja-Terttu Mustonen, for their secretarial services, and Mr Tapio Saari for photocopying;
- to Mr John Dawes for his informative presentation on PCTE and ECMA's plans for its ISO standardization;
- to Mr Bob Follett (Chairman) and Mr Joe Cote (Secretariat), and to Mr Roger Scowen for chairing the final session at short notice;
- to the ad hoc meeting conveners, namely Mr John Hill (Interpretations), Mr Paul Nash (Character Set Issues), Mr Willem Wakker (Cross Language Issues), and Mr Andrew Walker (Internationalization);
- to the drafting committee members, namely Mr Claude Bourstin, Mr Scott Jameson, Mr Keld Simonsen, Mr Graham Warren, and especially Mr Brian Meek for his editing services;
- and above all to Prof Hannu Jaakkola, for the many services he performed in organizing and running the meeting, and especially for arranging for the comprehensive range of services to be available, for introducing delegates to the mysteries of the Finnish sauna, and for acting as so generous a host.

(All resolutions were passed unanimously with the exception of Resolution P on which Japan and New Zealand abstained.)

