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**Resolutions Prepared at the
Sixth Plenary Meeting of SC22
Paris, September 20-24, 1993**

Resolution 247: Enabling processing of ISO/IEC 10646 data

ISO/IEC JTC1/SC22

-requests its working groups to support ISO/IEC 10646-1:1993 in their standards, and ensure that those of their standards which support character types permit the manipulation of all coded characters in ISO/IEC 10646-1:1993;

-    points out that this will:
(a) make all coded characters in 10646, including level 3, available for use within applications; and
(b) not require the semantic interpretation of composite sequences.

Unanimous

Resolution 248: File System Safe-Universal Transfer Format

ISO/IEC JTC1/SC22

-    recognizes the need to register the File System Safe-

Universal Transfer Format (FSS-UTF); and

-    instructs the WG14 convenor to take the necessary steps to register FSS-UTF with the ECMA Registration Authority according to the structure of ISO 2375.

Unanimous

Resolution 249:   Composite sequences of ISO/IEC 10646-1 characters

ISO/IEC JTC1/SC22

-recognizes the difficulties for programming languages and supporting environments to provide support for composite sequences of ISO/IEC 10646-1:1993; and

-invites member bodies to submit recommendations based on experience in this area.

Unanimous

Resolution 250: Announcement mechanisms for ISO/IEC 10646 encoding

ISO/IEC JTC1/SC22

-recognizes the need for announcement mechanisms for different encodings, levels and subrepertoires within ISO/IEC 10646 (see section 17.1 of ISO/IEC 10646-1:1993, second sentence); and

-encourages WG20 to establish appropriate liaison accordingly with other relevant working groups within SC2, SC21 and other JTC1 subcommittees on the issue of encoding annoncement mechanisms.

Unanimous

Resolution 251: Consistent terminology with ISO/IEC 10646

ISO/IEC JTC1/SC22 encourages its working groups

- to use the terminology defined by ISO/IEC 10646-1:1993 (clause 4, " Definitions"), to adopt it, and to apply it to SC22 work where possible; and

- where this is not possible, to explain terminology conflicts within the documents produced from project work items or revisions.

Unanimous

Resolution 252: Conformance test methods

ISO/IEC JTC1/SC22 instructs the SC22 Secretariat to forward a revised version of document N1403, Conformance Testing Reference Model for Open System Environments, which will be available after the October 1993 WG15 meeting, to JTC1 SWG-CA, SGFS, SC6, SC18, SC21, SC24, and SC26, with a request for comments from each of these bodies.

Unanimous

Resolution 253: JTC1 comments on document N1313

ISO/IEC JTC1/SC22

- has considered and accepts the comments by JTC1 on document SC22 N1313, SC22 Report to JTC1 on: Recommendation on Coordination of Internationalization Activities, contained in document JTC1 N2639, SC22 N1462;

- expresses its appreciation of the work entailed in producing many valid comments;

- does not, however, consider it necessary to reissue the document N1313 at present.

Unanimous

Resolution 254: API Specifications

ISO/IEC JTC1/SC22

- endorses the spirit of the recommendations of document JTC1 N2319, Contribution on the Need ... for the Standardization of API Specifications;

- recommends to JTC1 that a method for publishing be established for the guidelines which will result from review and comment on JTC1 N2536.

- believes that implementation of this course of action is required in a timely fashion;

- recognizes that this work has a cross-SC interest and has significant technical content;

- believes that a methodology will be necessary for reevaluating these guidelines as a result of further experience;

- places on record that it has significant interests in the area of Application Programming Interfaces, together with relevant expertise;

- points out that its whole programme of work consists of standards that are affected by these API guidelines;

- further points out that this programme of work includes standards which address needs in this area, such as formal definition techniques, cross-language specifications, and language independent specification guidelines; and therefore

- expresses its willingness to participate in activities appropriate to this area.

Unanimous

Resolution 255: Policies on cross-language issues

ISO/IEC JTC1/SC22 accepts the spirit of the proposed policies on cross-language issues recommended by the ad hoc group on cross-language issues which met at this plenary meeting, and instructs the SC22 secretariat to issue a letter ballot on adoption of the policies by SC22, when the relevant document, N1493, is received from the convener of the ad hoc group.

Unanimous

Resolution 256: Revision of CHILL

ISO/IEC JTC1/SC22 recommends that ISO/IEC 9496:1989 CCITT high level language CHILL be revised, and requests that ITU-T be asked to submit the most recent version of CHILL for JTC1 fast track processing as a revision of ISO/IEC 9496.

Unanimous

Resolution 257: PCTE

ISO/IEC JTC1/SC22

- notes the recommended assignment of PCTE to SC22 using the JTC1 fast track ballot of DIS 13719 (3 parts) and expresses its interest in PCTE;

- affirms that it is willing to accept assignment of this project, if the recommendation is approved;

- in the event of assignment to SC22, accepts the ECMA offer to host an ad hoc ballot resolution meeting in (approximately) early July 1994, which would be convened by the SC22 chairman, and requests the SC22 chairman to work with ECMA to determine the meeting details.

Unanimous

Resolution 258: Withdrawal of ISO 6373:1983 Minimal Basic

ISO/IEC JTC1/SC22 recommends withdrawal of ISO 6373:1983, Minimal BASIC.

Unanimous

Resolution 259: Confirmation of APL standard

ISO/IEC JTC1/SC22 recommends confirmation of ISO 8485:1989 APL.

Unanimous

Resolution 260: User Requirements in NPs

ISO/IEC JTC1/SC22 draws the attention of its WGs and member bodies to the following requirements of the JTC1 Directives:

- that NPs should address the issues of user needs and benefits in the "Scope" and "Purpose and Justification" clauses (Form 3, reverse);

- that "Each standard shall incorporate, where applicable, an annex that ... indicates what user requirements are addressed by the standard" (Clause 6.5.1.7).

Unanimous

Resolution 261:   Commonality in Standards

ISO/IEC JTC1/SC22

-    believes that greater commonality in its standards would aid
     their timely production in an effective and efficient manner;
     and therefore

-    encourages its working groups

     to adopt, whenever possible, specifications already in use in
     other standards;   and

     to use definitional approaches it supports, such as
     (a) cross-language standards (e.g. LIA, LID, LIPC);
     (b) formal specification methods (e.g. VDM-SL, Z);
     (c) guidelines in TRs (e.g. conformity clauses);   and
     (d) other formal description techniques (e.g. BNF, Cobol
     syntax definition for Cobol-related standards, etc.).

Unanimous

Resolution 262: Description of notation and interworking
                    requirements

ISO/IEC JTC1/SC22 resolves that future work items and revisions

-    shall describe the definitional approaches to be used, and
     justify the use of any which are not already used within SC22
     projects;   and

-    shall describe and justify their intentions with respect to
     interworking.

Unanimous

Resolution 263: WG4 Copyright Concerns

ISO/IEC JTC1/SC22 instructs the SC22 secretariat to contact ITTF
to ask for a response to the copyright concerns expressed by WG4
in its document SC22/WG4 N014 (attached to document SC22 N1483,
WG4 Annual Report for 1993).

Unanimous

Resolution 264: Guidance to WG conveners on JTC1 directives

ISO/IEC JTC1/SC22 reminds its WG conveners to operate in
accordance with the JTC1 directives and in particular draws
attention to the following provisions:

- working group meeting participants must be authorized by their national body or liaison organization (1.5.2);

- work must be progressed in a timely fashion (2.1.3.10, 2.1.3.11);

- an annex on portability considerations should where applicable be incorporated in standards (6.5.1.7);

- the CD ballot resolution must occur within three months of the close of CD ballot (6.5.2.5);

- standards must be periodically reviewed (6.11);

- meeting notices and agendas must be distributed by the SC22 secretariat, preferably four months, but no later than three months in advance (3.5.4.2) (to implement which, SC22 instructs its WG conveners to provide meeting notices and agendas no later than four months in advance of the meeting); and

- meeting reports must be distributed within two months of the end of the meeting (3.7).

Unanimous

Resolution 265:   Appointment or reappointment of working group conveners

SC22 confirms the appointment of the following working group conveners for three year terms:

- David Joslin (WG2 - Pascal)
- Robert Mathis (WG9 - Ada)
- Willem Wakker (WG11 - Language Bindings)
- Derek Andrews (WG19 - VDM)
- Arnold Winkler (WG20 - Internationalization)
- Samuel Harbison (WG21 - C++).

Unanimous

Resolution 266:   Appointment of Project Editors

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

- T. K. Sato (22.30.01 - Framework - requirements and models for internationalization)
- Keld Simonsen (22.30.02.01 - Functionality of the internationalization of applications)
- Alain LaBonté (22.30.02.02 - Functionality of the internationalization of applications - international ordering of ISO/IEC 10646)
- Don Sando (22.10.04 - Ada Complex Types and Functions)

- Jon Squire (22.10.05 - Ada Complex Elementary Functions)
- Andrew Koenig (22.32 - Programming Language C++)

Unanimous

Resolution 267: Cobol Synchronization Plan

ISO/IEC JTC1/SC22 approves the Cobol synchronization plan as given in document N1484.

Unanimous

Resolution 268: Varying Length Character Strings in Fortran

ISO/IEC JTC1/SC22

- notes the objections to the current designation of the Varying Length Character String draft standard as Amendment 1 of ISO 1539:1991, as expressed in CD ballot comments;

- authorizes the change of designation of this draft standard to ISO 1539-2, to make it the second part of a multipart standard of which the first part will be ISO 1539:1991, redesignated as ISO 1539-1:1991

- instructs the SC22 Secretariat to register document N1495 as DIS 1539-2 as a second part of a multipart standard, redesignated ISO 1539-1.

Unanimous

Resolution 269: Paragraph numbers in standards ISO/IEC JTC1/SC22

-endorses WG9's request to allow the use of paragraph numbers in their Ada standards; and

-requests WG9 to work directly with ITTF to determine what is possible for Ada.

Against: Japan

Resolution 270: CD registration of Ada documents

ISO/IEC JTC1/SC22 authorizes CD registrations of the following documents:

    N 1451 (revision of Ada 8652);
    N 1380 (Ada Complex Types and Functions);
    N 1381 (Ada Complex Elementary Functions).

Unanimous

Resolution 271: CD registration of revised Ada document

ISO/IEC JTC1/SC22 authorizes the CD registration of a revised version of document N1382, Ada Extensions and User Run Time Executive Interface, when the necessary changes have been agreed by WG9 and the revised version has been received by the SC22 secretariat.

Unanimous

Resolution 272: Late DIS registration for Modula-2

ISO/IEC JTC1/SC22

- notes that DIS registration of the next revision of CD 10514 Modula 2 will not take place until after the normal maximum allowed time from CD registration as prescribed in the JTC1 directives;
- accepts as valid the reasons for the delay in submission; and

- authorizes the extension by one year of the time permitted for progression of the CD to DIS stage.

Unanimous

Resolution 273: Project editors for Modula-2

ISO/IEC JTC1/SC22 requests its member bodies to help WG13 in identifying suitable candidates to be project editors for the following projects:

JTC1.22.18.2 (Object-oriented Modula-2); and
JTC1.22.18.3 (Modula-2 binding to POSIX).

Unanimous

Resolution 274: Use of VDM-SL in defining programming language standards

ISO/IEC JTC1/SC22 requests the convenors of WG13 and WG19

- to investigate the possibility of developing a Technical Report on the use of VDM-SL in defining programming languages; and

- having consulted the SC22 secretariat, to decide whether to submit a draft new work item proposal to SC22 for such a Technical Report.

Unanimous

Resolution 275: Division of work for POSIX System Administration

ISO/IEC JTC1/SC22

-recognizes the need for further subdivision of the POSIX work item 22.21.03 to allow separate development and balloting; and

-approves the following further division of 22.21.03, System Administration:

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22.21.03.01  System Administration
22.21.03.02  System Administration: Batch Services
22.21.03.03  System Administration: Print Administration
22.21.03.04  System Administration: Software Administration
22.21.03.05  System Administration: User Administration
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Unanimous

Resolution 276: Approval for Concurrent CD Registration and Ballot of Posix documents

ISO/IEC JTC1/SC22 authorizes the SC22 secretariat to conduct a combined ballot for CD registration and consideration of the CD, for documents for the following Posix projects, when they are received:

-22.21.01.01 Language Independent System Interface specification (to be assigned to a new part of ISO/IEC 9945; corresponds to IEEE P1372);
-22.21.01.03.01 Transparent File Access (corresponds to IEEE P1003.8);
-22.21.01.02.02 Real Time Extensions: Threads (corresponds to IEEE P1003.4a);
-22.21.03.02 9945-2 System Administration: Batch Services Amendment (corresponds to IEEE P1003.15a);
-22.21.03.03 System Administration: Print Administration (P1003.7.1);
-22.42 ISO/IEC 9945-1 Amendment: Security (corresponds to IEEE P1003.6.1);
-22.43 ISO/IEC 9945-2 Amendment: Security (corresponds to IEEE P1003.6.2); and
-22.xx Test Methods for ISO/IEC 9945-1 (if approved by JTC1, NP in N1402; corresponds to IEEE P2003.1).

Abstain: Netherlands

Resolution 277: Posix OSE

ISO/IEC JTC1/SC22

-instructs WG15 to verify that the document being developed for work item 22.38, Guide to Posix Open Systems Environments, is consistent with the title, scope and purpose of the approved NP; and

-notes that a change of scope would require approval by SC22 and JTC1.

Unanimous

Resolution 278: Posix Synchronization Plan

ISO/IEC JTC1/SC22 approves the Posix synchronization plan as given in document N1360.

Against: Denmark, Abstain: Germany

Resolution 279: Support for NP for POSIX Test Methods

ISO/IEC JTC1/SC22

- endorses the New Work Item Proposal in document N1402 for test methods for 9945-1; and

- instructs the SC22 Secretariat to forward this NP to JTC1 for balloting.

Unanimous

Resolution 280: Division of work for POSIX System Interface

ISO/IEC JTC1/SC22

- recognizes the need for separate development and balloting of POSIX work item 22.21.01.02, Real Time and Extensions; and

- approves the following division of 22.21.01.02, Real Time Extensions:

  22.21.01.02.01 Real Time
  22.21.01.02.02 Real Time Extensions: Threads

Unanimous

Resolution 281: Fast Track support for POSIX Ada Binding

ISO/IEC JTC1/SC22 requests the U.S. National Body to forward ANSI/IEEE Std. 1005.5, POSIX Ada Language Interfaces, for fasttrack balloting by JTC1.

Abstain: Canada, Netherlands

Resolution 282: POSIX language independent specifications

ISO/IEC JTC1/SC22 requests its member bodies and WG convenors to assist WG15 in identifying experts who are able to participate in and contribute to the development of the POSIX language independent specifications.

Unanimous

Resolution 283: CD registration of revised Lisp document

ISO/IEC JTC1/SC22 authorizes the CD registration of a revised

version of document N1311 (IS Lisp), incorporating the resolution of ballot comments recorded in document N1472, when the revised version has been received by the SC22 secretariat.

Unanimous

Resolution 284: Approval of concurrent PDAM registration and ballot for FIMS

ISO/IEC JTC1/SC22 approves concurrent PDAM registration and ballot for:

22.27.02 FIMS/COBOL binding
22.27.03 Intermediate FIMS Subset

Unanimous

Resolution 285: CD registration of VDM-SL

ISO/IEC JTC1/SC22 authorizes CD registration of the current WG19 working draft of the VDM-SL standard, noting that it is technically unchanged from the version in document N1346, when received by the SC22 secretariat.

Unanimous

Resolution 286: Assignment of project 22.45, Specification Language Z

ISO/IEC JTC1/SC22 assigns project 22.45 (Specification Language Z) to WG19 until the next SC22 plenary.

Unanimous

Resolution 287: Details of current and intended WG20 work

ISO/IEC JTC1/SC22 instructs its WG20 to provide to the SC22 secretariat, by 31 December 1993, for distribution a detailed report on the current work and anticipated output of WG20, so that members will be better able to understand the scope of WG20 and its relation to other SC22 WG activities.

Unanimous

Resolution 288: Registry of cultural elements

ISO/IEC JTC1/SC22 instructs WG20 to clarify

-   the purpose of the proposed registry of cultural elements;
-   the nature of the registry contents; and
-   how these contents could be used by programming languages.

Unanimous

Resolution 289: Subdivision of WG20 project

ISO/IEC JTC1/SC22

- accepts the vote as recorded in N1378 as indicating approval of the proposed subdivision of project 20.30.02; and therefore

- approves the following subdivision of 22.30.02, Functionality of the internationalization of applications:

    22.30.02.01 - Functionality of the internationalization of applications;
    22.30.02.02 - Functionality of the internationalization of applications - international ordering of ISO/IEC 10646.

Abstain: New Zealand, Netherlands

Resolution 290: Letter ballots on draft WG20 NPs

ISO/IEC JTC1/SC22 instructs the SC22 secretariat to distribute revised versions of documents N1486 and N1487 for SC22 consultative letter ballot.

Unanimous

Resolution 291: Approval of category C liaison

ISO/IEC JTC1/SC22

- approves, subject to the provision of additional supporting information, the establishment of category C liaison between SHARE Europe and WG20 Internationalization, as requested in documents N1485 and N1490; and

- instructs the SC22 Secretariat, if necessary in consultation with the SC22 chairman, to seek JTC1 authorization for such liaison.

Unanimous

Resolution 292: Affirmation of liaison officers

ISO/IEC JTC1 SC22 reaffirms the following liaison officers:

    SC2   - Mr. J.W. van Wingen
    SC7   - Mr. J. Côté
    SC21   - Mr. I. Korn
    SC21/WG3   - Mr. I. Korn

and notes that the liaison with SC15 and SC18 should be withdrawn.

Unanimous

Resolution 293: SC22 coordination with CEN TCs

ISO/IEC JTC1 SC22

- having considered the lack of approval by JTC1 of the "Vienna agreement" between ISO and CEN, notes the following impacts:
  (a) lack of a formal channel to establish liaisons with CEN TCs (e.g., TC311, TC304), and
  (b) increased opportunity for divergence between the European and ISO versions of the same standard (e.g., potentially, PCTE); and therefore

- requests JTC1 to take the actions necessary to allow SC22 to coordinate its standardization activities with CEN TCs.

Unanimous

Resolution 294: Approval of category C liaison

ISO/IEC JTC1/SC22

- approves the establishment of category C liaison between X/Open and WG4 - Cobol; and

- instructs the SC22 Secretariat to seek JTC1 authorization for such liaison.

Unanimous

Resolution 295: Appreciation: Mr Paul Rabin

ISO/IEC JTC1/SC22 expresses its warmest thanks and appreciation to Mr Paul Rabin for his work as convener of the SC22 ad hoc group on Cross Language Issues.

Unanimous

Resolution 296: Appreciation: Dr Leroy Dickey

ISO/IEC JTC1/SC22 expresses its warmest thanks and appreciation to Dr Leroy Dickey for convening the ad hoc meeting on Character Set Issues at such short notice.

Unanimous

Resolution 297: Appreciation: Mr Hal Jespersen

ISO/IEC JTC1/SC22 expresses its warmest thanks and appreciation to Mr Hal Jespersen for his outstanding contributions as project editor to the work of WG15 and in
guiding ISO/IEC IS9945-1 and 9945-2 through to final published

standards, and also for his contributions to many documents which are still in the development and approval cycle.

Unanimous

Resolution 298:   Appreciation: Mr Eiji Tokunaga

ISO/IEC JTC1/SC22 expresses its warmest thanks and appreciation to M.Eiji Tokunaga for his more than twenty years of service to SC22 and its predecessor committee TC97/SC5, and for all that he has done to further the development and standardization of programming languages; and extends to him its best wishes for a long and enjoyable retirement.

Unanimous - With Applause

Resolution 299:   Appreciation: Dr. Nakata

ISO/IEC JTC1/SC22 expresses its warmest thanks and appreciation to Dr. Nakata for his many years of service to SC22 and for all he has done to further the development and standardization of programming languages.

Unanimous

Resolution 300:   Appreciation: Dr Helmut Mertes

ISO/IEC JTC1/SC22 expresses its warmest thanks and appreciation to Dr. H. Mertes for his services to SC22 and for all that he has done to further the development and standardization of programming languages.

Unanimous

Resolution 301:   Appreciation: Mr Joseph Côté

ISO/IEC JTC1/SC22

-      records the enormous debt of gratitude that it owes to its first secretariat, Mr Joseph Côté, for the very many services to SC22 that he has provided since before the inception of the subcommittee in 1985;

-      notes with pleasure that he will remain in contact ith SC22 in future, as liaison with SC7; and

-      expresses its warmest good wishes for his future career.

Unanimous

Resolution 302: Appreciation: Mr Dick Weaver

ISQ/IEC JTC1/SC22 expresses its thanks to Mr Dick Weaver for his work as WG20 (Internationalization) convener.

Unanimous

Resolution 303: Appreciation: Mr Steve Carter

ISO/IEC JTC1/SC22 expresses its thanks to Mr Steve Carter for his work as WG21 (C++) convenor.

Unanimous

Resolution 304: Appreciation: general

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 AQL, CNES, COMPAQ, IBM, ILOG, and AFNOR;

- to M Claude Bourstin for his organization of the meeting, and Mme Emila Pinto and Mme Maria Mata for their secretariat services;

- to M François Ghoche for his informative presentation on the XBase language;

- to MM Régis Minot and Germain Sagols for their informative presentation on PCTE and ECMA's plans for its ISO standardization;

- to the ad hoc meeting conveners, namely Mr Paul Rabin (Cross Language Issues), Dr Leroy Dickey (Character Set Issues), Mr Mark Woodman (Language Proliferation), Mr Jim Isaac (APIs), and Mr Andrew Walker (Internationalization);

- to the drafting committee members, namely Mr Isak Korn, drafting committee chair, M Francois Genuys, Mr Harris Hall, Mr Graham Warren, and Mr Brian Meek for their editing services; and, last but not least

- Mr Bob Follett for his patient, good-humoured but nevertheless efficient chairing of the meeting.

Unanimous