ISO/TC97/SC22

N341

June 1987

TITLE: Re-issue of SC22 documents on definition and scope
of projects 97.22.16 and 97.22.17

SOURCE: Secretariat ISO/TC97/SC22

WORK ITEM: 97.22.16 and 97.22.17

STATUS: New

CROSS REFERENCE: 97/22 N243, 211, 213, 188, 187,071, 070, 058

DOCUMENT TYPE: Re-issue of SC22 documents

ACTION: See attached

ISO/TC97/SC22 has expressed some concerns about the support SC22/WG11 has been getting. SC22 appreciates the convenor's all-out attempt to stimulate interest in this area and to get these projects underway, and to maintain liaison with TC97/SC21.

For the convenience of SC22 Member Bodies and, in an effort to stimulate discussion of the relevant agenda items at the forthcoming HOD/C and Plenary Meetings of SC22, the following SC22 documents are re-issued:

    97/22 N058 -Definition and scope of projects 97.22.16 and 97.22.17

    97/22 N243 -Communication from the SC22 Chairman to SC22 Member
                      Bodies concerning existing liaison mechanisms

ISO/TC97 SC22
Programming Languages
Secretariat: CANADA (SCC)

May 1, 1985

To: P and L Members

Room 828, Lord Elgin Plaza
66 Slater Street
Ottawa, Ontario
K1A 0S5

Dear Members:

Attached to this letter are the following documents:

Attachment 1:   Request for comments on a Proposal for a NWI for ISO/TC97/SC22 -
Specification for a set of common language-independent, data types (doc.
97/22 N021)

Attachment 2:   Request for comment on a Proposal for a NWI for ISO/TC97/22 -
Specification for a model for common language-independent, procedure
calling mechanisms (doc. 97/22 N022)

During the SC22 Planning Meeting recently held in Washington, D.C., the enclosed NWI
proposals were discussed and it was agreed that SC22 would circulate, to its member bodies,
letter ballots on the submission of these NWI's to TC97 for confirmation.

Please complete the enclosed letter ballots and return them to the Secretariat of
ISO/TC97/SC22 no later than July 1, 1985.

Yours sincerely

J.L. Côté
Secretariat, ISO/TC97/SC22

c.c.   R. Kearney, Interim Chairman
ISO/TC97/SC22

ISO TC97 SC22
Programming Languages
Secretariat: CANADA (SCC)

ISO/TC97/SC22   N021

March 22, 1985

Source: ISO/TC97/SC22/WG10

Subject: Request for comments on a Proposal for a
               New Work Item for ISO/TC97/SC22 - Speci-
               fication for a set of common,
               language-independent, data types

Secretariat
Action: The enclosed proposal is circulated to
               Member Bodies of ISO/TC97/SC22 for com-
               ments. Comments should be sent to the
               Secretariat of TC97/SC22 on or before May
               15, 1985.

               This proposal will be discussed at the
               Planning Meeting of ISO/TC97/SC22, April
               17-19, 1985.

               Following any necessary action as a
               result of comments received, this item
               will be forwarded to ISO/TC97 for con-
               firmation and circulation to the
               P-members of TC97.

PROPOSAL FOR A NEW WORK ITEM		
date of presentation of proposal February 1985		proposer TC97/SC22/WG10
ISO/TC 97		secretariat ANSI

A proposal for a new work item shall be submitted to the TC secretariat concerned with a copy to the Central Secretariat. The proposed new work item must be within the approved scope of the TC. The TC secretariat shall circulate the proposal to the P-members of the TC for voting by correspondence; even if the proposal has appeared in the agenda of a TC meeting or been made during a meeting, confirmation by correspondence is required.

The proposer may be a member body, technical committee or sub-committee, Council committee, the Secretary-General or an organization outside ISO.

PRESENTATION OF THE PROPOSAL — to be filled in by the proposer

TITLE (the title should clearly indicate the type of standard which is envisaged — e.g., terminology, method of test, performance requirements, etc.)

Specification for a set of common, language-independent, data types

PURPOSE of the standard (attach a separate page as annex, if necessary)

To define a set of standard data types, independent of programming languages and functionalities, at the logical level, including both primitive and aggregate representations to be used in information interchange.

To provide a set of standard data types to be used as a basis for an intermediate data environment in the transmission of data generated by a standard conforming process and to be received by a standard conforming process.

EXISTING DOCUMENTS (in particular international and/or widely accepted national standards) on which the standard could be based

CCITT X.409
X3.42 (DIS   )
ISO 8211

OTHER COMMENTS (if any)

See appended comments

signature of the proposer

B L Meek

INQUIRY AMONG P-MEMBERS OF THE TC — to be filled in by the TC secretariat

Reference number	date of circulation	date of termination*

Comments of the TC secretariat (e.g. : confirmation that the proposed new work item falls within the approved scope of the TC)

signature of the TC secretariat

	yes	no	abstention
support the proposal	☐	☐	☐
We agree to participate actively in the proposed new work, if approved	☐	☐	
We have national standards dealing with this item (copies attached)	☐	☐	

ISO member body	date	signature of P-member

RESULT OF INQUIRY — to be filled in by the TC secretariat

The result is sent to all P- and O-members of the TC and to the Central Secretariat

P-members of the TC supporting the proposal	P-members of the TC not supporting the proposal	P-members of the TC abstaining	P-members of the TC agreeing to participate actively in the new work
Total	Total	Total	Total

The proposal is supported by an absolute majority of the P-members of the TC ☐

For the proposed new work, an appropriate SC exists ☐

A substantial* number of those P-members have agreed to participate actively in the new work ☐

A substantial* number of P-members of the relevant SC have agreed to participate actively in the new work ☐

Under the voting criteria for the acceptance of new work items

  — the proposal is approved ☐

  — the proposal is not approved ☐

The new work item has been registered as item No. . . . . of the programme of work of TC. . . . .

  .er the following title . . . .

. . . .

* normally not less than five.	date	signature of the TC secretariat

ANNEX

Justification

Users of data processing systems commonly wish to write programs (or even have to write programs) in one language which accesses data items generated by a program or programs written in another language. The differences between languages with respect to the definition of data types, and the variations allowed even between processors for the same language, put difficulties in the way of such interprogram and interlanguage communication. The problem arises in, for example, file transfer, data base access, message passing, and subprogram or function invocation. Programs fail to work, or fail to work correctly, because of differences, sometimes subtle, between apparently similar data items or aggregates of data items. Where the existence of differences is appreciated and allowed for in advance, the task of designing the input routines of the program to access the data, or the output routines of the program to access to access the data, or both, tends to be time-consuming and error-prone, and the resulting routines less efficient than would have been the case had the two languages been the same - with the results that costs are significantly increased. Hence there is a need for a standard, common, language-independent set of data types, to which all languages processors can refer. There is no need to attempt to encompass all the data types currently found in existing languages, or even in all those which are standardised. There is also no necessity to require all languages to adopt these data types; all that is needed is for a language processor which is to generate commonly accessible data to provide a mapping from standard set onto its native types. It should be noted here that the term 'data type' as used in the context of this work item, means a (logical) set of values within a data processing system, or of representation of such values within a data processing system, or of the operations on those values performed within different languages and processors. It may be found that it will be desirable for particular languages which recognise data types without equivalents in the standard set (for example, user-defined types) to define standard conversions between those types and types of the standard set, but such conversions are outside the scope of this work item. However, the standard set will need to include standard descriptors for commonly-occurring aggregates of data such as character strings, arrays, and records.

Programme of work

The scope of the programme of work is to define, at the logical level but not at the implementation level, a standard set of data types, including both 'primitive' types (in the sense of a set of values) and aggregate types, such that a program processed by any language processor which provides a mapping to the standard set, independently of the languages or processors concerned. In the first instance it shall be sufficient to define a set which will allow this within a single data processing system, but the set shall be so designed as to permit later extension to data access between processors running on different data processing systems which are in communication using open systems interconnection (OSI) standards.

ANNEX   (Continued)

Note

Language processors, and standards for specific languages, will not be required to adopt the proposed standard internally (though they will not be precluded from doing so)

Recommended Assignment: SC22 (new WG)

Lia son

To have close liaison with project on Presentation layer in OSI.

ISO ·TC97, SC22
Programming Languages
Secretariat: CANADA (SCC)

ISO/TC97/SC22   N022

March 22, 1985

Source: ISO/TC97/SC22/WG10

Subject: Request for commemts on a Proposal for a
New Work Item for ISO/TC97/SC22 - Speci-
fication for a model for common,
language-independent, procedure calling
mechanisms

Secretariat
Action: The enclosed proposal is circulated to
Member Bodies of ISO/TC97/SC22 for com-
ments. Comments should be sent to the
Secretariat of TC97/SC22 on or before May
15, 1985.

This proposal will be discussed at the
Planning Meeting of ISO/TC97/SC22, April
17-19, 1985.

Following any necessary action as a
result of comments received, this item
will be forwarded to ISO/TC97 for
confirmation and circulation to the
P-members of TC97.

PROPOSAL FOR A NEW WORK ITEM

date of presentation of proposal	proposer
February 1985	TC97/SC22/WG10
ISO/TC 97	secretariat ANSI

A proposal for a new work item shall be submitted to the TC secretariat concerned with a copy to the Central Secretariat. The proposed new work item must be within the approved scope of the TC. The TC secretariat shall circulate the proposal to the P-members of the TC for voting by correspondence; even if the proposal has appeared in the agenda of a TC meeting or been made during a meeting, confirmation by correspondence is required.

The proposer may be a member body, technical committee or sub-committee, Council committee, the Secretary-General or an organization outside ISO.

PRESENTATION OF THE PROPOSAL — to be filled in by the proposer

TITLE (the title should clearly indicate the type of standard which is envisaged — e.g., terminology, method of test, performance requirements, etc.)   Specification for a model for common, language-independent, procedure calling mechanisms

PURPOSE of the standard (attach a separate page as annex, if necessary)

To define a reference model of programming language module calling mechanisms.

To provide, at the functional and logical level, a model of programming language module calling mechanisms such that a program processed by a standard conforming programming language processor that provides mapping onto this model may successfully invoke a module that has been processed by a standard conforming programming language processor that provides a mapping from this model.

EXISTING DOCUMENTS (in particular international and/or widely accepted national standards) on which the standard could be based

Existing Programming Language Standards.

OTHER COMMENTS (if any)

See appended comment

signature of the proposer

B L Meek

INQUIRY AMONG P-MEMBERS OF THE TC — to be filled in by the TC secretariat

Reference number	date of circulation	date of termination*

Comments of the TC secretariat (e.g. : confirmation that the proposed new work item falls within the approved scope of the TC)

signature of the TC secretariat

* normally 3 months after date of circulation of inquiry.

ANNEX

Justification

Users of data processing systems commonly wish to write programs in one
language but to call from such programs procedures (typically in applications
libraries) written in another language. (Procedures in this sense include
both 'function' procedures and 'subroutine' procedures). The differences
between languages with respect to calling mechanisms (and even, in some cases
between processors for the same language) inhibits such interlanguage
communication. Even if, in a given data processing system, means are provided
to achieve this, the resulting program is almost certainly not portable to another
system. The alternatives - to write the calling program in the language of
the applications library (which may be inappropriate for other reasons) or to
rewrite the required parts of the applications library in the language of the
main program (which may create problems if the library procedures interface
to particular facilities) - or even both, if the program needs to access more
than one library - is likely at best to be expensive, time-consuming, inefficient
and error-prone and may not be practicable at all. Hence there is a need
for a standard procedure calling mechanisms to allow procedures written in one
language to be called from a program written in another. There is no necessity
for all languages to adopt the standard calling mechanism. All that is needed is
for language processors which require either to allow programs written in that
language to call (or 'invoke') procedure written in another, or which are to
make available (eg. by a compilation process) procedures written in that language
for calling (or 'invoking') by programs written in another, to provide a mapping
from their native procedure calling mechanism to the standard mechanism, or vice
versa.

Programme of work

The scope and the programme of work item is to define, at the functional
and logical level (but not at the implementation level) a standard model of the
module calling mechanism such that a program processed by any language processor
which provides a mapping onto the standard model may successfully invoke a
module processed by any language processor which provides a mapping from the
standard model, independently of the languages or processors concerned. In the
instance it shall be sufficient to define a model which will allow this within
a single data processing system, but the model shall be so designed as to permit
later extension to invocation between processors running on different data
processing systems which are in communication using open systems interconnection
(OSI) standards.

ANNEX (Continued)

Notes

1. The term "module" is used above to subsume "procedure" so that the work
    item can include more general subprogram invocations should this prove feasible.
    However, the task of producing a standard model of procedure calling
    mechanism is not to be delayed by attempts to produce a more general model,
    and the tasks of producing a standard suitable for use within single data
    processing system is not to be delayed by attempts to produce an OSI-based
    multi-system model.

2. The production of a standard for a common language-independent set of data
    types is a prerequisite for the production of this standard.

3. Language processors, and standards for specific languages, will not be required
    to adopt the proposed standard internally though they will not be precluded
    from doing so.

Recommended Assignments

SC22 new WG