**ISO/IEC JTC1/SC7 N1786**

**1997-09-02**

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| **Document Type** | Letter Ballot (60 Days) |
| **Title** | Study Report On The Feasibility of Developing Standards in the Area of Tool Compliance. |
| **Source** | JTC1/SC7 WG4 |
| **Project** | |
| **Status** | 60 Days Letter Ballot |
| **Reference** | |
| **Action  ID** | ACT |
| **Due Date** | 1997-11-03 |
| **Mailing Date** | 1997-09-02 |
| **Distribution** | Electronic: SC7_AG, JTC1 Sec. ; Disk: P, O  and L |
| **Medium** | E-Mail - uuencoded Word ; Diskette - Word |
| **No. of Pages** | 3 |
| **Disk** | 27 |
| **Note** | |

# LETTER BALLOT

Document SC7 N1786*: Study Report On The Feasibility of Developing Standards in the Area of Tool Compliance.*

This letter ballot is to be returned by each "P" National Body to the JTC 1/SC 7 Secretariat no later than **1997-11-03.**

\*      We approve document SC7 N1786 as presented

OR

\*      We approve document SC7 N1786 with the attached comments

OR

\*      We disapprove document SC7 N1786 for the attached technical reasons

OR

\*      We abstain from voting (P-members have an obligation to vote)

National Body: _____

Date: _____

Signature: _____

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\*  Delete whichever does not apply.

**WG4 Study Report**

**Feasibility of Developing Standards in the Area of Tool Compliance**


Executive Summary

This report summarizes the results of the one year JTC1/SC7 WG4 study period established at the Prague plenary (resolution 446) to investigate whether it is feasible to develop standards against which software engineering tools can be measured. WG4 members initiated activities in several areas which in the conclusion that such standards are both feasible and desirable, in selected areas. WG4 has selected the area of Configuration Management, and recommends the development of a Standard for Configuration Management Tools. To deal with the issue of tool compliance, WG4 recommends that such a tool standard should based upon a defined a set of requirements for against which a tool can be measured. If, as a result of SC7 review and comment on this report, SC7 agrees, WG4 will develop a New Project (NP) proposal at our 1997 interim meeting.


Introduction

The WG4 study period was motivated by the widely held perception that software engineering tools, CASE tools in particular, are often "oversold" and that user expectations and requirements are often not met. It was felt that standards which define requirements for tools would help alleviate this problem and provide benefit to the software engineering community.

The publication, in 1995, of ISO/IEC 12207 and ISO/IEC 14102 provide the best basis for establishing tool requirements. In order to determine whether tool standards based upon those two documents could be developed, WG4 members undertook the activities described below.


Study Period Activities

WG4 members performed a Web search in order to identify manufacturers of configuration management (CM) tools. The tool manufacturers were contacted to inform them of our study period and ask for their participation. In addition, members made additional contacts in their home countries and at professional meetings, and recently a panel session was held at the ISESS 97 meeting (June 12, 1997) which elicited further inputs.

Two WG4 members developed a conceptual draft of a CM tool requirements standard in order to validate that 12207 and 14102 do provide sufficient detail (in the area of CM) to allow the specification of tool requirements. This draft was sent out to WG4 members and several tool manufacturers for comment shortly before the current SC7 plenary, and two positive responses have been received from tool manufacturers (one US and the other UK).

WG4 met jointly with WG11 at the 1996 interim meeting to discuss various aspects of conformance, compliance, and certification, and we agreed to maintain a liaison on these issues.

WG4 considered alternate standards architectures (e.g., individual standards vs. a multi-part standard) and also alternate 12207 processes (e.g., quality assurance and control) which might be addressed by such standards.

Study Period Results

The study period proposal (see 4N-176) raised the following questions:

> What is the best structure for tool compliance standards? WG4 believes that the best structure would be a single standard which defines requirements for tools in a particular area. WG4 considered the possibility of an "umbrella" standard, i.e., a standard which would define a context within which one or more subordinate standards would fit, and decided that such a standard would be premature until several process-specific standards had been developed. Its development would divert resources from the primary goal - area specific standards. WG4 also considered developing a standard based upon a 12207 set of activities (quality assurance and control) which might be implemented in part in several tools. It was decided that such standards, if they are to be developed, should be based upon typical tool capabilities rather than 12207 processes, *per se.*

> What areas should be addressed first? WG4 considered tool requirements standards in the following areas: CM, requirements engineering, modeling tools, software documentation, reengineering tools, GUI tools, and project management tools. WG4 concluded that CM is the best choice for an initial effoet:

> - ✓ It is well-understood;
> - ✓ Its scope is generally agreed upon;
> - ✓ It is stable in its requirements;
> - ✓ There is an existing tool base;
> - ✓ It has software engineering-specific aspects;
> - ✓ It is crucial to the discipline of software engineering.

> In addition, WG4 feels that time-to-market is a key consideration, and a single, focused standard is the best approach to producing a useful product in a timely manner.

> What is the scope of developing such a standard? WG4, in the process of developing a conceptual draft standard has determined that the level of detail in the relevant sections of 12207 and 14102 is appropriate for establishing functional, and other, requirements. The initial standard would not include compliance test requirements; however, a compliance statement will be included that would allow the concept of partial compliance.

> Are there sufficient appropriate personnel available to develop such a standard? The participation of tool manufacturers in the process is deemed critical to ensuring that any resulting standard is realistic. Three tool manufacturers have already agreed to participate. In addition, WG4 delegates of five SC7 member bodies have already expressed interest and willingness in working on this effort.

The results of the study period activities suggest that the existence of standards that provide requirements which must be met by tools would have several benefits for both tool manufacturers and users:

> Users will be able to realistically establish tool expectations.

> Users could select tools with increased confidence of obtaining a positive return on their investment.

> Users evaluation and selection of tools could be focused on business and user-related criteria, because the tool's compliance with the standard provides technical qualification.

> Manufacturers of compliant tools will have a clear market advantage.

Manufacturers of non-compliant tools will be encouraged to improve them to a level of compliance.

Study Conclusions

Based upon the efforts described above, WG4 concludes that the development of one or more tool requirements standards is both feasible and desirable, and capable of completion in a timely manner.

Study Period Recommendation

WG4 recommends the SC7 initiate the development of an ISO/IEC Standard for Configuration Management Tools. If SC7 member bodies, in their comments on this study period report, agree with this recommendation, WG4 will develop a NP proposal at its interim meeting in October 1997, and distribute it to SC7 members bodies for ballot.