

ISO/IEC JTC1/SC7 /N3614

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Title	Possible proposal for testing standards
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No. of Pages	15
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Address reply to: ISO/IEC JTC1/SC7 Secretariat
École de technologie supérieure – Département of Software and IT Engineering
1100 Notre Dame Ouest, Montréal, Québec Canada H3C 1K3
secretariat@jtc1-sc7.org

www.jtc1-sc7.org

François Coallier

From: "Moore, Jim" <moorej@mitre.org>
To: <secretariat.sc7@gmail.com>; <fcoallier@ele.etsmtl.ca>
Cc: "Reid, Stuart" <s.c.reid@cranfield.ac.uk>
Sent: 7 octobre 2006 12:42
Attach: NP Testing-D1 for information.doc; Testing Standards D2.ppt
Subject: Possible proposal for testing standards

Dear Witold et Francois,

BSI and the IEEE Computer Society have been collaborating on a proposal for international standards for software testing. We plan to begin socializing the proposal at the interim meetings in Seoul. I am the point of contact for IEEE CS and Stuart Reid (cc-ed on this note) is the point of contact for BSI.

I have attached an initial draft of a New Work Item Proposal and an explanatory presentation. I would appreciate it if you would post these items to the SC7 web site for information. I would also appreciate it if you would forward this note to the advisory group and to the conveners for their information.

I will greatly appreciate your advice for socializing the proposal among the appropriate stakeholders.

Warmest regards,
Jim Moore
Liaison Representative, IEEE Computer Society

James W. Moore, CSDP, F-IEEE
The MITRE Corporation
7515 Colshire Drive, H505, McLean, VA 22102-7508
Office: +1.703.983.7396 Fax: +1.703.983.1279 Cell: +1.301.938.0260
Email for MITRE use: moorej@mitre.org. Email for everyone else: James.W.Moore@ieee.org

PROPOSAL FOR A NEW WORK ITEM

Date of presentation of proposal: YYYY-MM-DD	Proposer: ISO/IEC JTC 1/SC7
Secretariat: SCC	ISO/IEC JTC 1 N XXXX ISO/IEC JTC 1/SC XX N XXX

A proposal for a new work item shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

Presentation of the proposal - to be completed by the proposer. .

<p>Title (subject to be covered and type of standard, e.g. terminology, method of test, performance requirements, etc.)</p> <p>Software Engineering—Software Testing</p>
<p>Scope (and field of application) This project will produce a set of software testing standards applicable to all types of software products and systems. Four parts are planned: testing concepts; testing process; test documentation; and test case design. The standards will be consistent with the life cycle process and data standards of JTC 1/SC 7.</p>
<p>Purpose and justification –</p> <p>The purpose is to produce an integrated set of international standards to cover the software testing process throughout the development and maintenance of a software product or system.</p> <p>The concept part of the standard will provide an overview of testing principles and practices useful in the development and maintenance of software products and systems. Concepts and vocabulary common to the other parts of the standard will be introduced and described. Principles useful in understanding the detailed provisions of the other parts will be introduced in a suitably abstract form.</p> <p>The process part of the standard will be consistent with the testing-related provisions of the planned revision of the SC 7 Software Life Cycle Process standard, ISO/IEC 12207:2007. The proposed testing process part would build upon the provisions of 12207:2007 and would include additional guidance beyond the minimum requirements of 12207:2007.</p> <p>The documentation part of the standard will be consistent with the planned revision of the SC 7 Life Cycle Data standard, ISO/IEC 15289:200x. The proposed test documentation part would build upon the minimal requirements for documentation described in ISO/IEC 15289 and would include additional guidance beyond the minimum requirements of 15289.</p> <p>The test case design part of the standard will expand upon provisions of the other three parts to provide a focused treatment of test case design. It is not yet clear whether this part will include normative provisions beyond the other parts or will only provide additional guidance.</p> <p>In overall terms, the purpose of the project is to unify and integrate the currently fragmented corpus of normative literature regarding testing that is currently offered by three distinct standards-makers: BSI, IEEE, and ISO/IEC JTC 1/SC 7. The result of the project will be a consistent, unified treatment adopted by all three organizations.</p> <p>To the extent possible, given the requirement for consistency with the SC 7 collection, the new standard will provide backward compatibility or a migration path for current users of the base documents.</p>

Programme of work

If the proposed new work item is approved, which of the following document(s) is (are) expected to be developed?

a single International Standard

more than one International Standard (expected number:)

a multi-part International Standard consisting of4..... parts

an amendment or amendments to the following International Standard(s)

a technical report , type

And which standard development track is recommended for the approved new work item?

a. Default Timeframe

b. Accelerated Timeframe

c. Extended Timeframe

Relevant documents to be considered

From BSI: BS 7925-1, BS 7925-2 (to be contributed for use as base documents)

From IEEE: IEEE 1008, IEEE 829 (to be contributed for use as base documents)

From ISO/IEC JTC 1/SC 7: ISO/IEC 12207, ISO/IEC 15289, ISO/IEC TR 19759

Currently there exist two software testing standards used by practitioners that cover unit testing (BS 7925-2 and IEEE 1008). This duplication causes confusion and potential conflict and the two standards need to be amalgamated into a single international standard in this area.

There is currently no coverage in the BSI and IEEE standards of integration testing, system testing, qualification testing or acceptance testing and these areas are equally in need of standardization. A standard covering testing throughout development and maintenance is required.

Test case design techniques are currently defined in BS 7925-2 but examples provided in this standard are written from the perspective of unit testing, although the definitions are generally appropriate for all manner of software testing. There is a requirement for a standard to cover test case design techniques that is not targeted at unit testing, but that covers all test activities (to prevent duplication as many techniques apply to multiple forms of test activity); this new standard would be an updated and expanded version of the relevant sections from BS 7925-2, with changes and additions for the purpose of consistency and integration with the other standards of SC 7.

Currently BS 7925-1 provides a limited software testing vocabulary standard. It is limited because it was originally written to support BS 7925-2, which is concerned with unit testing. Although BS 7925-1 also contains a number of non phase-specific definitions, it is not complete and there is a requirement for a software testing vocabulary that covers the whole of software testing. This vocabulary will be detailed and provided to the current SC 7 vocabulary project. Terms that appear in multiple parts of the planned standard will be included in the Terms and Definitions clause of the part covering concepts. Terms that appear only in individual parts will be included in the Terms and Definitions clause of the relevant parts.

Software test documentation will be aligned with the test processes. The principle sources for this material will be IEEE Std 829 and ISO/IEC 15289.

The process provisions of the standard will quote the relevant statements of purpose, outcomes, activities and tasks from the revision of ISO/IEC 12207 and provide guidance in implementing those provisions.

Unless contradicted by a requirement for consistency with the normative standards of SC 7, the new standard will be consistent with the concepts and terminology of the Software Testing chapter of ISO/IEC TR 19759, the Guide to the Software Engineering Body of Knowledge.

To the extent possible, given the consistency requirements listed above, the new standard will provide backward compatibility or a migration path for current users of the base documents contributed by BSI and IEEE.

In accordance with SC 7 N2860, each part of the standard will provide an annex (for IEEE users) describing the relationship of this standard with other IEEE standards. Similar annexes should be provided for BSI users.

Co-operation and liaison

BSI will participate in the project by providing experts via the UK National Body.

The project will be coordinated with the IEEE Computer Society under the terms of the coordinated development process (sections 3 and 4 of SC 7 N2860).

Preparatory work offered with target date(s) None.

Signature:

Will the service of a maintenance agency or registration authority be required?No.....
 - If yes, have you identified a potential candidate?
 - If yes, indicate name

Are there any known requirements for coding? ...No.....
 -If yes, please specify on a separate page

Does the proposed standard concern known patented items? .No.....
 - If yes, please provide full information in an annex

Comments and recommendations of the JTC 1 or SC XX Secretariat - attach a separate page as an annex, if necessary

Comments with respect to the proposal in general, and recommendations thereon:
 It is proposed to assign this new item to JTC 1/SC XX

Voting on the proposal - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

Date of circulation: YYYY-MM-DD	Closing date for voting: YYYY-MM-DD	Signature of Secretary:
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NEW WORK ITEM PROPOSAL - PROJECT ACCEPTANCE CRITERIA		
Criterion	Validity	Explanation
A. Business Requirement		
A.1 Market Requirement	Essential <u> X </u> Desirable <u> </u> Supportive <u> </u>	The national standards on which the new international standard is to be based are widely used both as the basis for commercial contracts and international qualification schemes. However, their national origin often results in them being ignored by potential users in some countries. At present there are a number of gaps (and overlaps) in the coverage they provide. A coherent set of international standards for the complete life cycle is required.
A.2 Regulatory Context	Essential <u> </u> Desirable <u> </u> Supportive <u> X </u> Not Relevant <u> _ _ </u>	Reconciliation of the current conflicting standards will support any relevant regulatory situations.

B. Related Work		
B.1 Completion/Maintenance of current standards	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Maintenance of BS 7925-1, BS 7925-2, IEEE 1008, & IEEE 829.
B.2 Commitment to other organisation	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Input from BSI and IEEE Computer Society.
B.3 Other Source of standards	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
C. Technical Status		
C.1 Mature Technology	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Software testing processes at all phases of the life cycle are well-understood, as are test case design techniques.
C.2 Prospective Technology	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
C.3 Models/Tools	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
D. Conformity Assessment and Interoperability		
D.1 Conformity Assessment	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
D.2 Interoperability	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
E. Adaptability to Culture, Language, Human Functioning and Context of Use		
E.1 Cultural and Linguistic Adaptability	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
E.2 Adaptability to Human Functioning and Context of Use	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	N/A
F. Other Justification		

Notes to Proforma

A. Business Relevance. That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1 Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement, assessing the extent to which it is essential, desirable or merely supportive of some other project.

A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.

B. Related Work. Aspects of the relationship of this NP to other areas of standardisation work shall be identified in this section.

B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.

B.2 External Commitment. Groups, bodies, or for external to JTC 1 to which a commitment has been made by JTC for Co-operation and or collaboration on this NP shall be identified here.

B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC 1 as PAS, they shall be identified here.

C. Technical Status. The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.

C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardisation.

C.2 Prospective Technology. If the NP is anticipatory in nature based on expected or forecasted need, this shall be indicated here.

C.3 Models/Tools. If the NP relates to the creation of supportive reference models or tools, this shall be indicated here.

D. Conformity Assessment and Interoperability Any other aspects of background information justifying this NP shall be indicated here.

D.1 Indicate here if Conformity Assessment is relevant to your project. If so, indicate how it is addressed in your project plan.

D.2 Indicate here if Interoperability is relevant to your project. If so, indicate how it is addressed in your project plan

E. Adaptability to Culture, Language, Human Functioning and Context of Use

NOTE: The following criteria do not mandate any feature for adaptability to culture, language, human functioning or context of use. The following criteria require that if any features are provided for adapting to culture,

language, human functioning or context of use by the new Work Item proposal, then the proposer is required to identify these features.

E.1 Cultural and Linguistic Adaptability. Indicate here if cultural and natural language adaptability is applicable to your project. If so, indicate how it is addressed in your project plan.

ISO/IEC TR 19764 (Guidelines, methodology, and reference criteria for cultural and linguistic adaptability in information technology products) now defines it in a simplified way:

“ability for a product, while keeping its portability and interoperability properties, to:

- be internationalized, that is, be adapted to the special characteristics of natural languages and the commonly accepted rules for their use, or of cultures in a given geographical region;
- take into account the usual needs of any category of users, with the exception of specific needs related to physical constraints”

Examples of characteristics of natural languages are: national characters and associated elements (such as hyphens, dashes, and punctuation marks), writing systems, correct transformation of characters, dates and measures, sorting and searching rules, coding of national entities (such as country and currency codes), presentation of telephone numbers and keyboard layouts. Related terms are localization, jurisdiction and multilingualism.

E.2 Adaptability to Human Functioning and Context of Use. Indicate here whether the proposed standard takes into account diverse human functioning and diverse contexts of use. If so, indicate how it is addressed in your project plan.

NOTE:

1. Human functioning is defined by the World Health Organization at <http://www3.who.int/icf/beginners/bg.pdf> as:
<<In ICF (*International Classification of Functioning, Disability and Health*), the term *functioning* refers to all body functions, activities and participation.>>
2. Content of use is defined in ISO 9241-11:1998 (*Ergonomic requirements for office work with visual display terminals (VDTs) – Part 11: Guidance on usability*) as:
<<Users, tasks, equipment (hardware, software and materials), and the physical and societal environments in which a product is used.>>
3. Guidance for Standard Developers to address the needs of older persons and persons with disabilities).

F. Other Justification Any other aspects of background information justifying this NP shall be indicated here.

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Secretariat: SCC	ISO/IEC JTC 1 N XXXX ISO/IEC JTC 1/SC XX N XXX

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<p>Purpose and justification –</p> <p>The purpose is to produce an integrated set of international standards to cover the software testing process throughout the development and maintenance of a software product or system.</p> <p>The concept part of the standard will provide an overview of testing principles and practices useful in the development and maintenance of software products and systems. Concepts and vocabulary common to the other parts of the standard will be introduced and described. Principles useful in understanding the detailed provisions of the other parts will be introduced in a suitably abstract form.</p> <p>The process part of the standard will be consistent with the testing-related provisions of the planned revision of the SC 7 Software Life Cycle Process standard, ISO/IEC 12207:2007. The proposed testing process part would build upon the provisions of 12207:2007 and would include additional guidance beyond the minimum requirements of 12207:2007.</p> <p>The documentation part of the standard will be consistent with the planned revision of the SC 7 Life Cycle Data standard, ISO/IEC 15289:200x. The proposed test documentation part would build upon the minimal requirements for documentation described in ISO/IEC 15289 and would include additional guidance beyond the minimum requirements of 15289.</p> <p>The test case design part of the standard will expand upon provisions of the other three parts to provide a focused treatment of test case design. It is not yet clear whether this part will include normative provisions beyond the other parts or will only provide additional guidance.</p> <p>In overall terms, the purpose of the project is to unify and integrate the currently fragmented corpus of normative literature regarding testing that is currently offered by three distinct standards-makers: BSI, IEEE, and ISO/IEC JTC 1/SC 7. The result of the project will be a consistent, unified treatment adopted by all three organizations.</p> <p>To the extent possible, given the requirement for consistency with the SC 7 collection, the new standard will provide backward compatibility or a migration path for current users of the base documents.</p>

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Preparatory work offered with target date(s) None.

Signature:

Will the service of a maintenance agency or registration authority be required?No.....
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Date of circulation: YYYY-MM-DD	Closing date for voting: YYYY-MM-DD	Signature of Secretary:
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