ISO/IEC/IEEE 29119
The New International Software Testing Standards

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Scope

- The purpose of standards
- Motivation for software testing standards
- Development of standards
- Overview of ISO 29119
- Applicability
- Timeline
- Future involvement
What are standards?

"Guideline documentation that reflects agreements on products, practices, or operations by nationally or internationally recognized industrial, professional, trade associations or governmental bodies" - ISO

- **Guidelines** documents as they are not compulsory unless mandated by an individual or an organization
- **Agreements** because they should reflect a certain level of consensus
Why use standards?

- Consumers
  - Confidence in compliant products
  - Authors provide expertise in standards

- Manufacturers
  - Conformance and Marketing
  - ‘Safety’ from liability
  - Guidelines on production

- But not ‘Best Practice’...
Quality and Standards
What use are standards?

Standards describe a current ‘body of knowledge’ that provides the basis for a professional discipline

- Basis for:
  - Communication – common terminology
  - Professional qualifications
  - Certification/compliance schemes
  - Benchmark of ‘good industry practice’
  - Contracts
  - Interoperability and consistency......
Motivation for ISO 29119

- Demand for existing 'standards’
- Conflicts in current definitions and processes
- Gaps in the current standards provision
- A Baseline for the Testing Discipline
- Current industry practice is lacking
- Buyers unclear on what is 'good test practice'
Standardization Bodies
Published

Maintained

ISO/IEC Software Standards
ISO/IEC 29119 – Structure

Part 1
Concepts & Vocabulary

Part 2
Processes

Part 3
Documentation

Part 4
Testing Techniques

Part 5
Keyword-Driven Testing

BS 7925-1

BS 7925-2

IEEE 829

ISO/IEC 33063
Process Assessment
Part 1: Concepts & Vocabulary

Scope, Conformance, Normative References

DEFINITIONS

SOFTWARE TESTING CONCEPTS

TESTING IN DIFFERENT LIFE CYCLE MODELS

ROLES AND RESPONSIBILITIES IN TESTING

ANNEXES – Metrics, Examples, Bibliography
Part 2: Testing Processes

- Organizational Test Process
- Test Management Processes
- Dynamic Test Processes
Instatiating Testing Processes

Through a structured flowchart, the document illustrates the instatiating of testing processes, starting from the Organizational Test Process to dynamic test processes, with intermediate stages of testing strategies and project management. The flowchart visually represents the process of design, execution, and feedback in test management.
Test Management Processes

ORGANIZATIONAL TEST PROCESS

TEST MANAGEMENT PROCESSES

TEST PLAN UPDATES

TEST PLAN

TEST PLAN, CONTROL DIRECTIVES

TEST PLAN, TEST COMPLETION REPORT, TEST MEASURES

TEST MEASURES

TEST MANAGEMENT PROCESSES

DYNAMIC TEST PROCESSES

TEST COMPLETION REPORT

TEST COMPLETION

TEST PLAN, CONTROL DIRECTIVES

FEEDBACK ON ORGANIZATIONAL TEST DOCUMENTATION

ORGANIZATIONAL TEST DOCUMENTATION
Test Planning Process

1. Understand Context
2. Organise Test Plan Development
3. Identify & Estimate Risks
4. Design Test Strategy
5. Determine Staffing and Scheduling
6. Document Test Plan
7. Draft Test Plan
8. Gain Consensus on Test Plan
9. Approved Test Plan
10. Test Plan
11. Analyzed Risks
12. Identified Risk Treatment Approaches
13. Treatment Approaches
14. Design Test Strategy
15. Schedule, Staffing Profile
16. Test Strategy
Dynamic Test Processes

(LEVEL) TEST MANAGEMENT PROCESS

TEST DESIGN & IMPLEMENTATION
TEST ENVIRONMENT SET-UP
TEST EXECUTION
TEST INCIDENT REPORTING

TEST ENVIRONMENT REQUIREMENTS
TEST ENVIRONMENT READINESS REPORT
TEST RESULTS

NO ISSUES NOTICED
ISSUE NOTICED or RETEST RESULT
INCIDENT REPORT

TEST MEASURES
CONTROL DIRECTIVES
(LEVEL) TEST PLAN
Test Process Descriptions Example - *Organizational Test Process*

- Each testing process is described using a standard template (following ISO 24774), for example:

  - **Purpose**
    - The purpose of the *Organizational Test Process* is to develop and maintain organizational test specifications, such as the Test Policy and Organizational Test Strategy.

  - **Outcomes**
    - As a result of the successful implementation of the *Organizational Test Process*:
      - The organizational test specification is developed based on stakeholder requirements;
      - The organizational test specification is agreed by stakeholders;
      - The organizational test specification is published and accessible to stakeholders;
      - Conformance of stakeholders with the organizational test specification is managed;
      - The organizational test specification is reviewed on a periodic basis;
      - Minor updates to the organizational test specification are made as necessary.

  - **Activities and tasks**
    - The tester shall implement the following activities and tasks in accordance with applicable organization policies and procedures with respect to the *Organizational Test Process*.
      - **Develop Test Specification**
        - This activity consists of the following tasks:
          - Analyze any relevant source documents and the current testing practices within the organization to identify requirements for the organizational test specification.
          - etc.

      - **Gain Consensus on Test Specification**
        - etc.

  - **Information items**
    - The output of the *Organizational Test Process* is the organizational test specification. The Organizational Test Policy and Organizational Test Strategy are typical examples of organizational test specifications.
Part 3 – Test Documentation

Scope, Conformance, Normative References

TEST DOCUMENTATION

ANNEXES - EXAMPLES
Test Documentation Types

• Organizational test documentation
  – Test policy
  – Test strategy

• Project test documentation
  – Project test plan
  – Test project completion report

• Test level documentation
  – Test plan
  – Test specification
  – Test results
  – Anomaly reports
  – Level test status report
  – Test environment report
  – Test level completion report
Part 4 – Test Techniques

Scope, Conformance, Normative References

TEST DESIGN TECHNIQUES
- BLACK BOX
- WHITE BOX

TEST COVERAGE MEASUREMENT

ANNEXE – TESTING OF QUALITY CHARACTERISTICS

ANNEXE – SELECTION OF TECHNIQUES

ANNEXE – TEST TECHNIQUE EFFECTIVENESS
Are they applicable to you?

- Intended to be a generic standards
- Full vs. tailored conformance
- Small and large organizations
- Agile and Traditional
- Financial, Safety-Critical, Games...
- Following Regulatory Standards?

- Can you afford not to?
Current Status

- Working Draft (WD)
- Committee Draft (CD)
- Draft International Standard (DIS)
- Final Draft International Standard (FDIS)
- Final International Standard (FIS)

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Current status

• Drafts are out for review
  - Unsurprisingly (for a testing standard) we get plenty of comments (1000s)

• Countries attending meetings include:
  - Argentina, Australia, Brazil, Canada, China, Colombia, Denmark, Finland, France, Germany, Hong Kong, India, Japan, Korea, Malaysia, New Zealand, Peru, Poland, Russian Federation, South Africa, Spain, Sweden, Turkey, UK, USA

• Last meeting – Montreal, May 2013
• Next meeting – Edinburgh, Nov 2013
What is most likely to stop ISO 29119?

- Fear of change
- 'Not invented here' syndrome
- Perceived as competition
- Lack of required use
- Anti-standardization – craftsmen
- No evidence of efficacy
- Cost of use
- Complexity
- Lack of responsiveness
- Lack of inclusiveness...
Conclusions

- Parts 1, 2 & 3 published September 2013
  - My thanks to the editors and reviewers 😊

- International standard will provide practitioners with guidelines for testing that cover all aspects of the life cycle
  - Provides a consistent set of definitions, processes, procedures & techniques for software testing

- Will be adopted by IEEE, BSI, ISO and other national standards bodies
Do you want to be involved?

- Join the working group
  - representing your national standards body
  - 6 day meetings, every 6 months
  - contribute between meetings
- Join a WG26 mirror group
  - for your national standards body
- Contribute materials
- Review drafts
Any Questions?
Any Volunteers?
Finally...

- **sreid@testing-solutions.com**
  - if you have any questions on the standards
  - if you are interested in trialling the standard on a project, reviewing drafts or writing examples

- **http://softwaretestingstandard.org/**
  - WG26 website

- **http://www.jtc1-sc7.org/**
  - access to official documents released by WG 26