Test Metadata

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Abstract

This document defines a minimal set of metadata elements that can usefully be applied to test cases that are intended for publication within a conformance test suite. Defining and providing metadata has proved helpful in a variety of areas during the test development process. It also helps those who run the tests to verify the conformance of their implementations.

Status of this document

This section describes the status of this document at the time of its publication. Other documents may supersedes this document. A list of current W3C publications and the latest revision of this technical report can be found in the W3C technical reports index at http://www.w3.org/TR/.

This document is a W3C Working Group Note. It has been produced by the Quality Assurance Working Group, which is part of the Quality Assurance Activity. It has been made available for discussion by W3C members and other interested parties. For more
This is the first published version of this document. It has been written along with the QA Framework by collecting the test development experience of W3C Working Groups and summarizing the work done on the Wiki about Test and Metadata.

Publication as a Working Group Note does not imply endorsement by the W3C Membership. This is a draft document and may be updated, replaced or obsoleted by other documents at any time. It is inappropriate to cite this document as other than work in progress.

The QA Working Group does not expect this document to become a Recommendation. Rather, after further development, review and refinement, it may be updated and maintained as an Interest Group Note.

You may email comments on this document to www-qa@w3.org, the publicly archived list of the QA Interest Group.

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1. Introduction

This document defines a minimal set of metadata elements that can usefully be applied to test cases that are intended for publication within a conformance test suite. Defining and
providing metadata has proved helpful in a variety of areas during the test development process. It also helps those who run the tests to verify the conformance of their implementations. For example, metadata can be used to:

- track tests during the development and review process
- filter tests according to a variety of criteria (for example, whether or not they are applicable for a particular profile or optional feature)
- identify the area of the specification that is tested by the tests
- aid in the construction of a test harness to automatically execute tests

If the use of standard metadata elements is adopted within the W3C it is likely that standardized tools will be developed to facilitate many of these tasks.

Please note that these metadata elements are simply suggestions. It is likely that additional metadata elements may be appropriate for your implementation. It may even make sense to define metadata about metadata (for example, the Dublin Core elements Date [DCES] and Language [DCES] may usefully be applied to several of the elements defined below.)

We used in this document the Dublin Core elements where it seems appropriate. DCMI Metadata Terms [DCMI] gives an introduction to the use of metadata. For background information on the test development process and additional rationale for the use of metadata, the QA Working Group has created a Test FAQ [TEST-FAQ]. A practical implementation of some of these principles is available in XML Query Test Suite defined by the XML Query and XSL Working Groups. (Their Guidelines for Test Submission [XQUERY-TEST] and Guidelines for Test Execution [XQUERY-TEST] provide explanations and examples.)

2. Metadata elements

2.1 Identifier

<table>
<thead>
<tr>
<th>Name</th>
<th>Identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>An unambiguous reference to the test case.</td>
</tr>
<tr>
<td>Rationale</td>
<td>Enables the test case to be referenced and identified.</td>
</tr>
<tr>
<td>Required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Syntax</td>
<td>Freeform (URI recommended).</td>
</tr>
<tr>
<td>Example</td>
<td>CSS 2.1 Test Suite: Pseudo-elements in Selectors [CSS-TEST]</td>
</tr>
</tbody>
</table>

- Dublin Core: Identifier [DCES]
- Test Metadata: Title

Comments Most W3C test suites use URIs as identifiers.
2.2 Title

Name: Title

Description: The name by which the test case is formally known.

Rationale: It may be advantageous to provide a more human-oriented alternative to the Identifier.

Required?: No.

Syntax: Text.

Example: The CSS Test Suite [CSS-TEST] uses the term Description for human readable names that more properly match this Title element. (For example, CSS 2.1 Test Suite: Co>.)

See Also: • Dublin Core: Title [DCES]

Comments: This element is optional because the Identifier will often be sufficient. Note also that in very large test suites it may be impractical to define unambiguous Titles.

2.3 Purpose

Name: Purpose

Description: A brief explanation of the reason the test case was developed.

Rationale: Provides additional context for the test case.

Required?: Yes.

Syntax: Free-form (hypertext).

Example: The CSS1 test suite [CSS-TEST] provides such explanations. For example:

Text Metadata: Description

See Also: • Test Metadata: SpecRef

Comments: The Purpose should typically be kept short enough (a "one liner") to be displayed in tabular format. More detailed explanation can be provided in a Description element.

2.4 Description

Name: Description

Description: A representation in words of the nature and characteristics of the test case.

Rationale: A detailed explanation can help reviewers to understand the purpose of a test and may also provide those executing the test with information that will...
be helpful if the test fails.

**Required?** No.

**Syntax** Free-form (hypertext).

The WebCGM test suite [WEBCGM-TEST] incorporates detailed descriptions. For example: "Test basic CGM-to-HTML link, from a

**Example** Application Structure with linkuri APS Attribute within the CGM, to a whole HTML document, with no behaviors or fragments associated with the link."

**See Also**
- Dublin Core: [Description] (DCES)
- Test Metadata: Purpose

**Comments** This element can be used to provide more detailed information than can be provided in the relatively short Purpose element.

### 2.5 Status

**Name** Status

**Description** One of an enumerated list of values that can be used to track the state of a test at a given time.

**Rationale** It can be helpful to track the status of a test case during the development process.

**Required?** No.

**Syntax** Constrained choice from an enumerated list.

**Example** One of: unconfirmed, new, assigned, pending, accepted, rejected, holding

(see Conformance Test Process For WCAG 2.0 [WCAG2-CONF-PROCESS] and their Test Case Status document.).

**See Also**

**Comments** This metadata element may also be useful after test suite publication, when it could be used to record the state of challenges to the validity of the test case.

### 2.6 SpecRef

**Name** SpecRef

**Description** Identification of the portion of the specification tested by this test case.

**Rationale** Traceability back to the specification.

**Required?** Yes.

**Syntax** Freeform hypertext or (ideally) an XPath expression.

**Example** The HTML 4.1 test suite provides a list of Testable Assertions that
associates individual test cases with assertions in the specification.

**See Also**
The more specific this reference is the better. (Simply pointing to the beginning of a large sub-section of the spec is not helpful. Identifying the exact string containing the requirement to be tested is ideal.)

---

### 2.7 Preconditions

<table>
<thead>
<tr>
<th>Name</th>
<th>Preconditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Conditions that must be met before this test is executed.</td>
</tr>
<tr>
<td>Rationale</td>
<td>Any such conditions must be understood and met before the test case can be successfully executed.</td>
</tr>
<tr>
<td>Required?</td>
<td>No.</td>
</tr>
<tr>
<td>Syntax</td>
<td>Freeform (hypertext).</td>
</tr>
<tr>
<td>Example</td>
<td>It might be necessary that a network connection be available or a server process be running before the test case is executed.</td>
</tr>
<tr>
<td>See Also</td>
<td>Test Metadata: Inputs</td>
</tr>
<tr>
<td>Comments</td>
<td>This element does not refer to parameters or data required for execution (see Inputs).</td>
</tr>
</tbody>
</table>

### 2.8 Inputs

<table>
<thead>
<tr>
<th>Name</th>
<th>Inputs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Parameters or data that are needed for the test execution.</td>
</tr>
<tr>
<td>Rationale</td>
<td>Must be understood and supplied for test execution.</td>
</tr>
<tr>
<td>Required?</td>
<td>No.</td>
</tr>
<tr>
<td>Syntax</td>
<td>Implementation dependent.</td>
</tr>
<tr>
<td>Example</td>
<td>The XML Query Test Suite metadata [XQUERY-TEST] defines an input_file element.</td>
</tr>
<tr>
<td>See Also</td>
<td>Test Metadata: Preconditions</td>
</tr>
<tr>
<td>Comments</td>
<td></td>
</tr>
</tbody>
</table>

### 2.9 ExpectedResults

<table>
<thead>
<tr>
<th>Name</th>
<th>ExpectedResults</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The results that a conformant implementation is expected to produce when this test case is executed.</td>
</tr>
<tr>
<td>Rationale</td>
<td>If these are not defined, it will be impossible to determine whether the test</td>
</tr>
</tbody>
</table>
case passed or failed.

| Required? | Yes. |
| Syntax    | Implementation dependent. |
| Example   | Test cases within the CSS Test Suite embed their expected results within the test's output. See this example [CSS-TEST]. The XML Query Test Suite metadata [XQUERY-TEST] defines an output_file element. |

See Also

Comments

### 2.10 Version

<table>
<thead>
<tr>
<th>Name</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>An identifier that allows one to distinguish between different revisions of test case.</td>
</tr>
<tr>
<td>Rationale</td>
<td>Test cases often evolve over time, and it is important to maintain a history and to be able to identify and distinguish between different revisions.</td>
</tr>
<tr>
<td>Required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Syntax</td>
<td>Implementation dependent.</td>
</tr>
<tr>
<td>Example</td>
<td>This will often be generated by a source-code control system such as CVS.</td>
</tr>
</tbody>
</table>

See Also

Comments

### 2.11 Contributor

<table>
<thead>
<tr>
<th>Name</th>
<th>Contributor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The individual or organization that contributed this test case.</td>
</tr>
<tr>
<td>Rationale</td>
<td>It may be necessary to contact the contributor to ask for information about the test case or to request an update.</td>
</tr>
<tr>
<td>Required?</td>
<td>Yes.</td>
</tr>
<tr>
<td>Syntax</td>
<td>Freeform.</td>
</tr>
<tr>
<td>Example</td>
<td>The XML Conformance Test Suite [XML-TEST] encodes the contributor in the directory structure used to store the test cases.</td>
</tr>
</tbody>
</table>

See Also | Dublin Core: Contributor [DCES] |

Comments

### 2.12 Rights

| Name | Rights |

Deleted: contributor

Richard T. Kennedy 05-9-9 14:21

Richard T. Kennedy 05-9-9 15:20
**Description** Information about rights held in and over the test case.

**Rationale** Publishers and users of the test case need to understand the associated Intellectual Property Rights (IPR).

**Required?** Yes.

**Syntax** Ask your lawyer.

**Example**

**See Also** Dublin Core: Rights [DCES]

**Comments** This will often be simply a pointer to a copyright notice contained within the source code.

### 2.13 Grouping

**Name** Grouping

**Description** A mechanism for classifying test cases into groups.

**Rationale** To enable the selection of subsets of test cases that share certain characteristics.

**Required?** No.

**Syntax** Implementation dependent. Possibilities include naming conventions and enumerated lists.

**Example** Tests may be classified as interactive or automated, positive or negative, voice or **Dual-tone-multi-frequency (DTMF, also known as touch-tone)**.

**See Also**

An important use of grouping techniques is to classify tests that belong to particular profiles, modules, or other discretionary groupings (see Variability in Specifications [SPEC-VARIABILITY] for a detailed discussion of these issues). The SVG test suite [SVG-TEST], for example, uses naming conventions to distinguish between test cases targeted at different profiles (full, basic, or tiny).

### 2.14 SeeAlso

**Name** SeeAlso

**Description** A list of references to relevant materials.

**Rationale** Can help to clarify the intent or usefulness of the test case.

**Required?** No.

**Syntax** Freeform (hypertext).

**Example** A pointer to an item in an issue-tracking system such as Bugzilla

**Example** [BUGZILLA] or to a mailing list thread in which the justification for this test case is discussed.
3. Acknowledgments

The following QA Working Group and Interest Group participants have contributed significantly to this document:

- Tim Boland (NIST),
- Dimitris Dimitriadis (Ontologicon),
- Dominique Hazaël-Massieux (W3C),
- Lofton Henderson (CGM Open),
- Richard T. Kennedy (Boeing),
- David Marston (Lotus Development Corp),
- Patrick Curran (Sun Microsystems),
- Lynne Rosenthal (NIST),
- Mark Skall (NIST).

4. References

BUGZILLA


CSS-TEST

Cascading Style Sheets test suites, CSS Working Group,
 http://www.w3.org/Style/CSS/Test/.

DCES


DCMI


HTML4-TEST

HTML4 Test Suite, W3C, http://www.w3.org/MarkUp/Test/HTML401/current/.

SPEC-VARIABILITY


SVG-TEST

TEST-FAQ

WCAG2-CONF-PROCESS

WEBCGM-TEST

XML-TEST

XQUERY-TEST