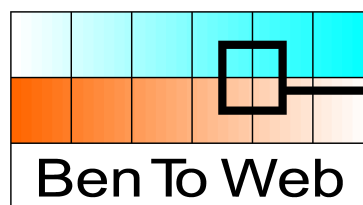


**Benchmarking Tools and  
Methods for the Web  
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## **D4.3 XHTML 1.0 and CSS 2.0 Test Suite - 2nd update**

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## Table of Contents

1	Executive Summary.....	4
2	The XHTML + CSS Test Suite.....	5
2.1	General Description.....	5
2.2	Remapping of Test Cases to the Last Call Working Draft.....	5
2.3	Reviewing, Adding and Removing Test Cases.....	6
3	Interpretation of Success Criteria.....	7
3.1	SC 1.3.1: Information and Relationships.....	7
3.2	SC 2.1.1: Keyboard Access and Server-Side Image Maps.....	8
3.3	SC 3.2.2: Keyboard Events and Changing the Setting of an Input Field.....	8
3.4	SC 3.2.5: Change on Request and Warnings.....	9
4	Appendix A: Mapping between June 2005 and April 2006 WCAG Working Drafts..	11

## List of Tables

Table 1: Mapping between June 2005 and April 2006 WCAG Working Drafts.	15
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# 1 Executive Summary

This report complements the XHTML 1.0 + CSS 2.0 test suite, which is a publicly available deliverable. The test suite consists of more than 580 test cases for the 27 April 2006 Last Call Working Draft of WCAG 2.0.<sup>1</sup> Each test case consists of one or more XHTML files and accompanying metadata. The test cases map directly to WCAG 2.0 success criteria instead of tests that sit between the test files and the success criteria.

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<sup>1</sup><http://www.w3.org/TR/2005/WD-WCAG20-20060427/>

## 2 The XHTML + CSS Test Suite

### 2.1 General Description

BenToWeb's XHTML + CSS test suite is a suite of test files and accompanying metadata for the Web Content Accessibility Guidelines 2.0 (WCAG 2.0). The test suite contains over 580 test cases and over 600 test files. Each test case covers one success criterion, with at least one test that fails the success criterion and at least one that passes. The test files use XHTML 1.0; CSS 2.0 is also used where this is relevant to the success criterion.

The test cases map to the 27 April 2006 Working Draft of WCAG 2.0, the Last Call Working Draft at the moment of preparing this document.

### 2.2 Remapping of Test Cases to the Last Call Working Draft

The first version of the test suite was based on the 30 June 2005 working draft of WCAG 2.0. After the publication of the Last Call Working Draft of WCAG 2.0, the test cases needed to be remapped. The 30 June 2005 working draft contained 67 success criteria, whereas the Last Call Working Draft reduced this number to 56. The remapping of test cases took one of the following forms:

- if several success criteria were folded into a single success criterion (e.g., GL 1.1 L1 SC 1-5), the test cases were renamed to match the single resulting success criterion;
- if a success criterion was split into several success criteria (e.g., GL 2.4 L2 SC 3), the test cases were divided over the resulting success criteria depending on the purpose of the test cases;
- if a success criterion was removed (e.g., GL 1.4 L2 SC 2, GL 2.3 L1 SC 1), the corresponding test cases were deleted (unless they could be remapped to another relevant success criterion);
- if a success criterion was reworded or changed (including a level change), the test cases were renamed to match resulting success criterion;
- if a success criterion was added, it initially had no test cases.

This remapping reduced the number of test cases from 477 (the number in the original test suite) to just over 450. The references to the 30 June 2005

working draft were not lost but marked as “secondary rules” in the new version. The first version of the test suite is still available.

## 2.3 Reviewing, Adding and Removing Test Cases

After the remapping, test cases were reviewed to see if they were still relevant, if the expected evaluation result was still correct and if the formulation of description, purpose and other metadata still matched the success criterion.

New test cases were added for the success criteria that were added in the Last Call Working Draft. The document “Techniques for WCAG 2.0” was also useful in generating more test cases, so that more success criteria have more than just the minimum number of test cases: in the first test suite, each success criterion needed at least two test cases; in the updated test suite, only success criteria 1.2.1, 1.2.2, 1.3.4, 2.2.3, 2.3.2 have exactly two test cases. Success criteria 2.2.5 and 2.5.3 have only one test case. There are no test cases for success criteria 2.4.6, 2.4.7, 4.1.2, 4.2.1, 4.2.2, 4.2.4 and 4.2.5, for which test cases will be generated in the third review of the test suite. This process increased the number of test cases to more than 580.

The updated BenToWeb XHTML 1 + CSS 2 test suite is publicly available at [http://bentoweb.org/XHTML1\\_TestSuite2](http://bentoweb.org/XHTML1_TestSuite2).<sup>2</sup> The BenToWeb test suites are also publicly available through anonymous CVS access at [cvs.fit.fraunhofer.de:2401/bentoweb](http://cvs.fit.fraunhofer.de:2401/bentoweb) (username: anonymous; password: anonymous).<sup>3</sup>

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<sup>2</sup>The first version is available under: [http://bentoweb.org/XHTML1\\_TestSuite](http://bentoweb.org/XHTML1_TestSuite)

<sup>3</sup>Connections need to be made via STUNNEL: <http://www.stunnel.org/>

## 3 Interpretation of Success Criteria

During the review phase of the test suite, “test case authors” and “validators” sometimes needed to “translate” a success criterion into more concrete, technology-specific terms (XHTML and CSS). A few examples are given in this section. The rules given here do not replace but supplement what is in “Understanding WCAG 2.0”.

### 3.1 SC 1.3.1: Information and Relationships

Success criterion 1.3.1 requires: “Information and relationships conveyed through presentation can be programmatically determined, and notification of changes to these is available to user agents, including assistive technologies.”

For the purpose of the test suite, we adopted the following rules:

- Presentational elements (`tt`, `i`, `b`, `big`, `small`, `strike`, `s`, `u`<sup>4</sup>, `font`<sup>5</sup>) **fail** if their presentation characteristics are used to convey information and/or relationships.
- Presentational elements (`tt`, `i`, `b`, `big`, `small`, `strike`, `s`, `u`, `font`) **pass** if their presentation characteristics are purely decorative and convey no meaning at all.
- CSS used to create a presentation that conveys information (without appropriate semantic markup) **fails**.
- CSS used to enhance the presentation of semantic markup **passes**.
- CSS used for presentation characteristics that are purely decorative (i.e. not conveying meaning or relationships) **passes**.
- Semantic markup (`em`, `strong`, `dfn`, `samp`, `var`, `code`, `cite`, `abbr`, acronym<sup>6</sup>, `del`, `ins`<sup>7</sup>, `blockquote`, `q`<sup>8</sup>, `hX`, ...) **passes**. Semantic markup enhanced with CSS = situation 4.
- Semantic markup used for its default presentation characteristics (for example, using the `blockquote` element merely to indent a paragraph) **fails**.

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<sup>4</sup><http://www.w3.org/TR/html401/present/graphics.html#font-style>

<sup>5</sup><http://www.w3.org/TR/html401/present/graphics.html#edef-FONT>

<sup>6</sup><http://www.w3.org/TR/html401/struct/text.html#h-9.2.1>

<sup>7</sup><http://www.w3.org/TR/html401/struct/text.html#h-9.4>

<sup>8</sup><http://www.w3.org/TR/html401/struct/text.html#h-9.2.2>

## 3.2 SC 2.1.1: Keyboard Access and Server-Side Image Maps

Success criterion 2.1.1 requires: “All functionality of the content is operable in a non-time-dependent manner through a keyboard interface, except where the task requires analog, time-dependent input.”

Appendix D of WCAG 2.0 (“Comparison of WCAG 1.0 checkpoints to WCAG 2.0 (Non-Normative)”) maps WCAG 1.0 checkpoint 1.2 to several WCAG 2.0 success criteria. Checkpoint 1.2 reads: “Provide redundant text links for each active region of a server-side image map.” With regard to keyboard access, the checkpoint is mapped to success criterion 2.1.1, but whether providing redundant text links is sufficient depends on how one interprets “content” (as in “All functionality of the content...”): if it is interpreted as confined to the image map itself, server-side image maps always fail SC 2.1.1 and an alternative needs to be provided to meet SC 4.2.1, but if “content” is interpreted as the web page containing the image map, then redundant text links in the same web page would meet SC 2.2.1 and it would not be necessary to fall back on SC 4.2.1. Server-side image maps are not mentioned in “Understanding WCAG 2.0”, nor in “Techniques for WCAG 2.0”. However, “Conformance claims apply to Web units, and sets of Web units,”<sup>9</sup> so providing redundant text links in the same page as the server-side image map is a sufficient technique for success criterion 2.2.1. (The June 2005 version of “HTML Techniques for WCAG 2.0” contained a technique called “Text links for server-side image maps”<sup>10</sup> for success criterion 2.4 L 1 SC 1. This technique is not available in the current version.)

## 3.3 SC 3.2.2: Keyboard Events and Changing the Setting of an Input Field

Success criterion 3.2.2 requires: “Changing the setting of any form control or field does not automatically cause a change of context (beyond moving to the next field in tab order), unless the authored unit contains instructions before the control that describe the behavior.” “How to Meet Success Criterion 3.2.2” explains: “The intent of this success criterion is to ensure that entering data or selecting from a control has predictable effects. (...)”<sup>11</sup> This is straightforward enough at first sight: for example, when a user enters text into an input field, browses a menu or checks a radio button,

<sup>9</sup><http://www.w3.org/TR/2006/WD-WCAG20-20060427/conformance.html#conformance-claims>

<sup>10</sup>[http://www.w3.org/TR/2005/WD-WCAG20-HTML-TECHS-20050630/Overview.html#ssim\\_textlinks](http://www.w3.org/TR/2005/WD-WCAG20-HTML-TECHS-20050630/Overview.html#ssim_textlinks)

<sup>11</sup><http://www.w3.org/TR/2006/WD-UNDERSTANDING-WCAG20-20060427/Overview.html#consistent-behavior-unpredictable-change>



browsers should not change the focus or load a new page. However, if a client-side script captures the keyboard events on an input field and changes the focus or loads a new page (i.e. instead of displaying the user's input), so that the user's input is never visible in the page, does that constitute a change of the setting of an input field? The intent of the success criterion is to prohibit this behaviour, but the letter of the success criterion appears to leave a small loophole. Possibly, a definition of "changing the setting an input form or field" that includes input events could stop this loophole. Test cases that exhibit this behaviour are currently mapped to success criterion 3.2.5 instead of 3.2.2.

### 3.4 SC 3.2.5: Change on Request and Warnings

Success criterion 3.2.5 requires: "Changes of context are initiated only by user request." This raised a discussion about what kind of user actions can be considered as – implicit or explicit – requests for changes of context (a change of: user agent; viewport; focus; content that changes the meaning of the Web unit<sup>12</sup>). More specifically, it was not clear whether text cues that warn the user about changes of context can make the difference between passing or failing the success criterion. Success criterion 3.2.2 contains an exception for instructions or warning to the user, but success criterion 3.2.5 and the intent section of "How to Meet Success Criterion 3.2.5"<sup>13</sup> do not mention warnings. One needs to go to the Benefits section and the examples of failure 22<sup>14</sup> to find any mention of warnings.

The first benefit of SC 3.2.5 contains the following example: "individuals who are blind or have low vision may have difficulty knowing when a visual context change has occurred, such as a new window popping up. In this case, warning users of context changes in advance minimizes confusion when the user discovers that the back button no longer behaves as expected."

Example 2 of failure 22 - "Failure of SC 3.2.5 due to opening windows that are not requested by the user " - says: "A user clicks on a link, and a new window appears. The original link has no associated text saying that it will open a new window."

This means that the value of warnings for changes of context is not evident to casual readers. For the purpose of the test suite we adopted the following rules:

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<sup>12</sup><http://www.w3.org/TR/2006/WD-WCAG20-20060427/complete.html#context-changedef>

<sup>13</sup><http://www.w3.org/TR/2006/WD-UNDERSTANDING-WCAG20-20060427/Overview.html#consistent-behavior-no-extreme-changes-context>

<sup>14</sup><http://www.w3.org/TR/2006/WD-WCAG20-TECHS-20060427/Overview.html#F22>

- A change of user agent without a warning **fails**.
- A change of user agent with a warning **passes**. Example: a link to an MP3 where the link text contains the warning "(launches external player)".
- A change of viewport (i.e. a new browser window) without a warning and without "target='\_blank'" on the link element **fails**.
- A change of viewport with "target='\_blank'" on the link element (no warning needed) **passes**.
- A change of viewport – i.e. a new window launched by means of JavaScript – with a warning **passes**.
- A change of focus initiated by activating a link or an image map area **passes**.
- A change of focus initiated by activating a submit button, a reset button or an image button **passes**.
- A change of content initiated by activating a link or an image map area **passes**.
- A change of content initiated by activating a submit button or an image button **passes**.
- A change of content initiated by activating a reset button **passes** if the result is the original empty form.

The consequence of all this is that HTML pages can only link to other documents that browsers handle natively, but not to sound, video, multimedia, PDF, office documents, unless the user is warned about the change of user agent.

## 4 Appendix A: Mapping between June 2005 and April 2006 WCAG Working Drafts

The table below presents how success criteria from the June 2005 working draft of WCAG 2.0 map to the success criteria of the April 2006 working draft. Note that WCAG 2.0 adopted a new numbering system for the latter draft, so the level of the success criterion is given in parentheses.

June 2005	April 2006	Comments
1.1 L1 SC 1 (info)	1.1.1 a (L1)	
1.1 L1 SC 2 (functional)	1.1.1 a (L1)	
1.1 L1 SC 3 (sensory experience)	1.1.1 b (L1)	
1.1 L1 SC 4 (ignorable)	1.1.1 d (L1)	
1.1 L1 SC 5 (live audio-only, video-only)	1.1.1 b (L1)	
1.1 L3 SC 1 (prerecorded multimedia)	1.2.2 (L1)	changed
not covered	1.1.1 c (Turing test) (L1)	new
1.2 L1 SC 1 (captions)	1.2.1 (L1)	identical
1.2 L1 SC 2 (audio descriptions)	1.2.2 (audio description or screenplay) (L1) 1.2.3 (audio description) (L2)	new/split
1.2 L2 SC 1 (captions live multimedia)	1.2.4 (L2)	"real-time" added
1.2 L3 SC 1 (sign language)	1.2.5 (L3)	identical text
1.2 L3 SC 2 (extended audio description)	1.2.6 (L3)	identical text
1.2 L3 SC 3 (audio descriptions live)		(not feasible?)
not covered	1.2.7 (full text alternative - prerecorded multimedia) (L3)	new
1.3 L1 SC 1 (structures programmatically)	1.3.1 (information and relationships) (L1)	changed

<b>June 2005</b>	<b>April 2006</b>	<b>Comments</b>
determinable)		
1.3 L1 SC 2 (information conveyed by color)	(1.3.2)	replaced by L2 SC
1.3 L2 SC 1 (variations in presentation)	1.3.4 (L2)	identical text (comma added)
1.3 L2 SC 2 (information conveyed by color)	1.3.2 (L1)	L2 to L1, reworded
1.3 L3 SC 1 (sequence affecting meaning)	1.3.3 (L1)	L3 to L1, reworded
not covered	1.3.5 (L2)	new
1.4 L1 SC 1 (text programmatically determinable)		removed
1.4 L2 SC 1 (contrast - ratio undefined)	1.4.1 (luminosity contrast ratio) (L2)	changed (luminosity contrast ratio defined)
1.4 L2 SC 2 (background pattern)		removed
1.4 L2 SC 3 (turn off background audio)	1.4.2 (L2)	reworded
1.4 L3 SC 1 (contrast - ratio undefined)	1.4.3 (L3)	reworded (luminosity contrast ratio defined)
1.4 L3 SC 2 (background sound)	1.4.4 (L3)	reworded
2.1 L1 SC 1 (keyboard interface)	2.1.1 (L1)	reworded
2.1 L3 SC 1 (keyboard interface)	2.1.2 (L3)	reworded
2.2 L1 SC 1 (time outs)	2.2.1 (L1)	reworded
2.2 L2 SC 1 (blinking)	2.2.2 (L2)	reworded
2.2 L2 SC 2 (pause moving content)	2.2.3 (L2)	reworded
2.2 L3 SC 1 (timing not essential)	2.2.4 (L3)	identical

<b>June 2005</b>	<b>April 2006</b>	<b>Comments</b>
2.2 L3 SC 2 (interruptions)	2.2.5 (L3)	reworded
2.2 L3 SC 3 (authenticated session timeout)	2.2.6 (L3)	reworded
2.3 L1 SC 1 (flash - warning)	(2.3.1)	removed
2.3 L2 SC 1 (flash)	2.3.1 (L1)	changed; L2 to L1
2.3 L3 SC 1 (spatial pattern threshold or red flash)		removed
not covered	2.3.2 (three flashes within second) (L3)	new
2.4 L1 SC 1 (navigational features)	(1.3.1)(4.1.2) (L1)	removed: covered elsewhere
2.4 L2 SC 1 (locate content)	2.4.2 (L2)	reworded
2.4 L2 SC 2 (bypass repeated blocks)	2.4.1 (L1)	L2 to L1, reworded
2.4 L2 SC 3 (delivery unit - descriptive title)	2.4.3 (Web unit has title) (L2) 2.4.5 (titles etcetera are descriptive) (L3)	changed, split
2.4 L2 SC 4 (programmatic references)	2.4.4 (L2)	reworded/changed
2.4 L3 SC 1 (focus in sequential navigation)	2.4.6 (L3)	reworded
2.4 L3 SC 2 (information about location)	2.4.7 (L3)	reworded
not covered	2.4.8 (link purpose programmatically determinable)	new
2.5 L2 SC 1 (input error)	2.5.1 (L1)	identical
2.5 L2 SC 2 (input error: suggestions)	2.5.2 (L2)	changed
2.5 L2 SC 3 (legal or financial transactions)	2.5.3 (L2)	reworded

<b>June 2005</b>	<b>April 2006</b>	<b>Comments</b>
2.5 L3 SC 1 (context-sensitive help)	2.5.4 (L3)	reworded
3.1 L1 SC 1 (primary language)	3.1.1 (L1)	reworded
3.1 L2 SC 1 (changes in language)	3.1.2 (L2)	reworded
3.1 L3 SC 1 (definitions - all words)		removed (not feasible)
3.1 L3 SC 2 (definitions - specific usage)	3.1.3 (L3)	"phrases" added
3.1 L3 SC 3 (abbreviations)	3.1.4 (L3)	"acronyms" deleted; "abbreviation" now broader
3.1 L3 SC 4 (section titles descriptive)	2.4.5 (L3)	merged with 2.4 L2 SC 3
3.1 L3 SC 5 (reading ability)	3.1.5 (L3)	reworded/changed
not covered	3.1.6 (pronunciation and meaning) (L3)	new
3.2 L1 SC 1 (change of context programmatically determinable)		removed
3.2 L2 SC 1 (repeated components - same order)	3.2.3 (repeated navigational mechanisms - same relative order) (L2)	changed (narrower)
3.2 L2 SC 2 (focus: no change of context)	3.2.1 (L1)	L2 to L1
3.2 L2 SC 3 (form input: no change of context)	3.2.2 (L1)	L2 to L1, changed: exceptions added
3.2 L2 SC 4 (repeated functional components)	3.2.4 (L2)	reworded
3.2 L3 SC 1 (repeated graphical components)	covered by 3.2.4 (L2) and 1.1.1 (L1)	removed: covered elsewhere
3.2 L3 SC 2 (changes of context: user request)	3.2.5 (L3)	identical
not covered	4.1.1 (unambiguous parsing) (L1)	new

<b>June 2005</b>	<b>April 2006</b>	<b>Comments</b>
4.2 L1 SC 1 (alternate version)	4.2.1 (alternate version Level 1) (L1)	changed
4.2 L1 SC 2 (no harm outside baseline)	4.2.2 (L1)	reworded
4.2 L1 SC 3 (role, state and value)	4.1.2 (L1)	4.2 to 4.1, reworded
4.2 L1 SC 4 (labels for input controls)	partly covered by 1.3.1 (L1)?	removed
4.2 L1 SC 5 (states programmatically determinable)	covered by 4.1.2 (L1)?	removed
4.2 L1 SC 6 (changes programmatically determinable)	(4.1.2) (L1)	4.2 to 4.1, merged
4.2 L2 SC 1 (accessibility API or markup)		removed (not testable?)
not covered	4.2.3 (alternate version Level 1-2)	new
4.2 L3 SC 1 (conformance outside baseline)	4.2.4 (L3)	changed

Table 1: Mapping between June 2005 and April 2006 WCAG Working Drafts.