

Capability Survey of Japanese User Agents and Its Impact on Web Accessibility

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ABSTRACT

Capabilities of major Japanese user agents, three screen readers and one voice browser, were investigated with the following test files: W3C UAAG 1.0 Test Suite for HTML 4.01, an accessible PDF file, an accessible Flash file, and test files which test Japanese specific issues. Using the UAAG 1.0 Test Suite, 20 out of 48 Priority 1 checkpoints were met by all user agents, while all of the user agents failed to meet 11 of the checkpoints. Test results of all test files were assigned into three categories: capabilities satisfied by almost all user agents, capabilities not satisfied by any of the user agents, and capabilities that were satisfied by some of the user agents only. The test results indicated that 1) two major Japanese user agents do not have enough functions to navigate through a Web page using the structure information of the content, and 2) none of the user agents have enough functions to control multimedia and time-dependent interactions. These results provide an objective evidence to define the Japanese baseline, a set of technologies that a user agent is assumed to support, which is required in the WCAG 2.0 working draft. Accessibility responsibility between Web content and user agents is also determined by the current survey.

Categories and Subject Descriptors

K.4.2 [Social Issues]: Assistive technologies for persons with disabilities, H.5.2 [User Interfaces]: Evaluation/methodology, Standardization, H.5.4 [Hypertext/Hypermedia]: User issues

General Terms

Measurement, Human Factors, Standardization, Verification

Keywords

Web, accessibility, user agent, W3C, UAAG, MSAA, DOM, Japan, visual disability.

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1. INTRODUCTION

The importance of Web accessibility has been recognized worldwide. The W3C (World Wide Web Consortium) developed the first version of the Web Content accessibility Guidelines (WCAG 1.0) [3] in 1999. WCAG 1.0 was subsequently used to guide or regulate Web content accessibility in many countries. In the United States, Section 508 of the Rehabilitation Act [11], which includes Web accessibility requirements, came into effect in 2001.

In Japan, private companies developed their own guidelines based on WCAG 1.0. In the public sector, in 1999, "Guidelines for the Creation of Internet Web Content Accessible by People with Disabilities" were jointly announced by the Ministry of Posts and Telecommunications and the Ministry of Health and Welfare. In 2004, JIS X 8341-3 "Guideline for older persons and persons with disabilities -information and communications equipment, software and services- Part3: Web Content" [7], was published as a Japanese Industrial Standard. JIS X 8341-3 was developed paying attention to the harmonization with WCAG 1.0, and with the subsequent WCAG 2.0 working draft [17,18]. Section 67 of the Industrial Standardization Law of Japan states that "When the nation and local public bodies determine standards, they must pay attention to JIS." Thus the JIS X 8341 guidelines affect public sector activity in Japan.

In spite of the above guidelines, Web accessibility remains deficient, even in the public sector. In the United States, according to "The State of Federal Websites: The Pursuit of Excellence" [12] published by PricewaterhouseCoopers Endowment for The Business of Government, only 13.5% of federal web sites were fully accessible (i.e., the Bobby accessibility testing software reported no error for those sites.). Web accessibility has also been evaluated in Europe, as reported by the UK Cabinet Office in a document titled "eAccessibility of public sector services in the European Union" [13]. According to that document, detailed assessment of 436 government service websites across Europe showed that only 3% of them achieved Level A conformance with WCAG 1.0. In Japan, "Nikkei Pason (Personal Computer)" carried out a survey of government web sites and found that even the most accessible of them lacked fundamental considerations of accessibility [10].

Improvements of Web accessibility require web site design, authoring, and programming to conform to Web content accessibility guidelines such as WCAG 1.0, Section 508, or JIS X

6.5: Programmatic operation of user agent user interface	1	NR	NR	NR	NR
6.6: Programmatic notification of changes	1	NR	NR	NR	NR
6.7: Conventional keyboard APIs	1	NR	NR	NR	NR
6.8: API character encodings	1	NR	NR	NR	NR
6.9: DOM access to CSS style sheets	2	NR	NR	NR	NR
6.10: Timely exchanges through APIs	2	NR	NR	NR	NR
7.1: Respect Focus and selection conventions	1	C	C	C	C
7.2: Respect input configuration conventions	1	C	C	C	C
7.3: Respect operating environment conventions	2	C	C	C	C
7.4: Provide input configuration indications	2	C	C	C	C
8.1: Implement accessibility features	1	NR	NR	NR	NR
8.2: Conform to specifications	2	PI	PI	AC	AC
9.1: Provide content focus	1	C	C	C	C
9.2: Provide user interface focus	1	C	C	C	C
9.3: Move content focus	1	PI	PI	AC	C
9.4: Restore viewport state history	1	NI	NI	NI	NI
9.5: No event on focus change	2	NI	NI	NI	C
9.6: Show event handlers	2	NI	NI	NI	PI
9.7: Move content focus in reverse l	2	PI	PI	AC	C
9.8: Provide text search	2	NI	NI	C	C
9.9: Allow structured navigation	2	PI	PI	C	AC
9.10: Configure important elements	3	NI	NI	NI	NI
10.1: Associate table cells and headers	1	PI	PI	AC	AC
10.2: Highlight selection, content focus, enabled elements, visited links	1	PI	PI	PI	AC
10.3: Single highlight configuration	2	NI	NI	NI	NI
10.4: Provide outline view	2	NI	NI	C	PI
10.5: Provide link information	3	NI	NI	C	AC
10.6: Highlight current viewport	1	NI	NI	AC	AC
10.7: Indicate viewport position	3	NI	NI	C	C
11.1: Current user input configuration	1	NI	NI	C	C
11.2: Current author input configuration	2	NI	NI	NI	C
11.3: Allow override of bindings	2	NR	NR	C	NI
11.4: Single-key access	2	PI	PI	C	PI
11.5: Default input configuration	2	AC	AC	C	C
11.6: User profiles	2	C	C	C	C
11.7: Tool bar configuration	3	NI	NI	NR	C
12.1: Provide accessible documentation	1	AC	AC	C	AC
12.2: Provide documentation of accessibility features	1	C	C	C	C
12.3: Provide documentation of default bindings	1	C	C	C	C
12.4: Provide documentation of changes between versions	2	C	C	C	C
12.5: Provide dedicated accessibility section	2	C	C	C	C

