W3C WCAG 2.2

Web Content Accessibility Guidelines

Complete Reference Guide

W3C Recommendation • October 2023

International Standard for Web Accessibility

Making the web accessible to everyone

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1. Introduction to WCAG 2.2

The Web Content Accessibility Guidelines (WCAG) 2.2 are the international standard for web accessibility, developed by the World Wide Web Consortium (W3C). These guidelines ensure that web content is accessible to people with disabilities, including those with blindness, low vision, hearing loss, mobility impairments, cognitive limitations, and other disabilities.

Why WCAG 2.2 Matters

Web accessibility is not just about compliance—it's about creating an inclusive digital world. WCAG 2.2 benefits:

- **People with disabilities:** Ensuring equal access to information and functionality
- **All users:** Improving general usability and user experience
- **Organizations:** Meeting legal requirements and expanding market reach
- **Society:** Promoting digital inclusion and equal opportunities

Key Features of WCAG 2.2

- 9 new success criteria addressing modern web needs
- Enhanced mobile accessibility requirements
- Improved cognitive accessibility support
- Backward compatibility with WCAG 2.1
- Technology-neutral guidelines

2. The Four Principles

WCAG 2.2 is organized around four fundamental principles. Content must be:

1. Perceivable

Information and user interface components must be presentable to users in ways they can perceive.

- Text alternatives for images
- Captions and alternatives for multimedia
- Content can be presented in different ways without losing meaning
- Make it easier for users to see and hear content

2. Operable

User interface components and navigation must be operable.

- All functionality available via keyboard
- Users have enough time to read and use content
- Content does not cause seizures or physical reactions
- Users can navigate and find content

3. Understandable

Information and the operation of user interface must be understandable.

- Text is readable and understandable
- Content appears and operates in predictable ways
- Users are helped to avoid and correct mistakes

4. Robust

Content must be robust enough that it can be interpreted reliably by a wide variety of user agents, including assistive technologies.

- Content can be interpreted by assistive technologies
- Content remains accessible as technologies advance

3. Conformance Levels

WCAG 2.2 defines three levels of conformance:

Level A Minimum

The minimum level of accessibility. Failure to meet Level A criteria means that some groups of people will be unable to access the content.

25 Success Criteria covering basic accessibility features like keyboard navigation, text alternatives, and proper markup.

Level AA Standard

The standard level recommended for most websites. This is often the legal requirement in many jurisdictions.

38 Success Criteria including color contrast requirements, resizable text, and enhanced keyboard support.

Level AAA Enhanced

The highest level of accessibility. Not recommended as a general policy for entire websites due to the restrictive nature of some criteria.

23 Success Criteria with the most stringent requirements for contrast, timing, and content complexity.

Choosing the Right Level

- **Level AA** is the recommended target for most organizations
- **Level AAA** may be appropriate for specialized content or audiences
- **Legal requirements** often specify Level AA compliance

4. What's New in WCAG 2.2

WCAG 2.2 introduces 9 new success criteria that address modern web accessibility needs, particularly for mobile devices and cognitive accessibility.

New Success Criteria

2.4.11 Focus Not Obscured (Minimum) `AA` `NEW`

When a user interface component receives keyboard focus, it is not entirely hidden due to author-created content.

2.4.12 Focus Not Obscured (Enhanced) `AAA` `NEW`

When a user interface component receives keyboard focus, no part of it is hidden by author-created content.

2.4.13 Focus Appearance `AAA` `NEW`

When a user interface component has keyboard focus, an area of the focus indicator meets minimum size and contrast requirements.

2.5.7 Dragging Movements `AA` `NEW`

All functionality that uses a dragging movement can be achieved by a single pointer without dragging.

2.5.8 Target Size (Minimum) `AA` `NEW`

The size of the target for pointer inputs is at least 24 by 24 CSS pixels, with specified exceptions.

3.2.6 Consistent Help `A` `NEW`

If help is available on multiple pages, it appears in a consistent location relative to other content.

3.3.7 Redundant Entry A NEW

Information previously entered by the user is either auto-populated or available for selection, with exceptions for security.

3.3.8 Accessible Authentication (Minimum) AA NEW

Cognitive function tests are not required for authentication unless specified alternatives are provided.

3.3.9 Accessible Authentication (Enhanced) AAA NEW

No cognitive function test is required for authentication unless it meets specific criteria.

6. Implementation Guide

Getting Started

1. **Assess current state:** Conduct an accessibility audit
2. **Set goals:** Determine target conformance level
3. **Prioritize:** Focus on high-impact, easy-to-fix issues first
4. **Train team:** Educate developers, designers, and content creators
5. **Integrate:** Build accessibility into your development process

Essential Implementation Checklist

Provide text alternatives for images
Ensure keyboard accessibility for all interactive elements
Use proper heading structure (H1-H6)
Maintain sufficient color contrast (4.5:1 for normal text)
Make forms accessible with proper labels
Provide focus indicators for keyboard navigation
Ensure content is readable and understandable
Test with screen readers and other assistive technologies
Validate HTML markup
Provide skip navigation links

Common Implementation Patterns

Alt Text for Images

```
<img src="chart.png" alt="Sales increased 25% from Q1 to Q2 2023">
```

Provide descriptive alternative text that conveys the meaning and function of images.

Form Labels

```
<label for="email">Email Address</label>

<input type="email" id="email" name="email" required>
```

Associate labels with form controls using the 'for' and 'id' attributes.

ARIA Landmarks

```
<nav role="navigation" aria-label="Main navigation">

<main role="main">

<aside role="complementary">
```

Use ARIA landmarks to help users navigate page sections.

7. Testing and Validation

Testing Methods

Automated Testing

- **Tools:** axe-core, WAVE, Lighthouse, Pa11y
- **Benefits:** Fast, catches common issues, integrates with CI/CD
- **Limitations:** Only catches 20-30% of accessibility issues

Manual Testing

- **Keyboard navigation:** Tab through all interactive elements
- **Screen reader testing:** NVDA, JAWS, VoiceOver
- **Color contrast:** Use tools like Colour Contrast Analyser
- **Zoom testing:** Test at 200% zoom level

User Testing

- **Include users with disabilities** in your testing process
- **Observe real usage patterns** and pain points
- **Gather feedback** on usability and accessibility

Testing Checklist

Run automated accessibility scanner
Test keyboard navigation completely
Verify screen reader compatibility
Check color contrast ratios
Test at 200% browser zoom
Validate HTML markup

Test with CSS and JavaScript disabled
Verify mobile accessibility
Test form error handling
Check focus management

8. Additional Resources

Official W3C Resources

- **WCAG 2.2 Guidelines:** w3.org/WAI/WCAG22/
- **Understanding WCAG 2.2:** w3.org/WAI/WCAG22/Understanding/
- **Techniques for WCAG 2.2:** w3.org/WAI/WCAG22/Techniques/
- **How to Meet WCAG:** w3.org/WAI/WCAG22/quickref/

Testing Tools

- **axe DevTools:** Browser extension for automated testing
- **WAVE:** Web accessibility evaluation tool
- **Lighthouse:** Built into Chrome DevTools
- **Colour Contrast Analyser:** Desktop app for contrast testing
- **Screen Readers:** NVDA (free), JAWS, VoiceOver

Legal and Compliance

- **ADA (USA):** Americans with Disabilities Act
- **Section 508 (USA):** Federal accessibility requirements
- **EN 301 549 (EU):** European accessibility standard
- **AODA (Canada):** Accessibility for Ontarians with Disabilities Act

Training and Certification

- **IAAP:** International Association of Accessibility Professionals
- **WebAIM:** Web accessibility training and resources
- **Deque University:** Comprehensive accessibility courses
- **W3C WAI:** Free online accessibility courses

Community and Support

- **WebAIM Discussion List:** webaim.org/discussion/
- **A11Y Slack:** web-a11y.slack.com
- **Twitter:** #a11y hashtag for accessibility discussions
- **Stack Overflow:** accessibility tag for technical questions