

# Tech Check: Digital Accessibility Tools Every Company Should Be Using

Kevin McDaniel

[Accessibility.com](https://www.accessibility.com)



# Assessing Technology for Accessibility Toolkit

Color Contrast Checkers

Website Accessibility Scanning Tools

Screen readers

Screen magnification software

Speech input

WCAG-EM

# Color Contrast Examples

Great (21:1)

Good (11:1)

Pass (4.5:1)

Bad (1.8:1)

Bad (1.2:1)



Foreground colour (black)  
HEX #000000

Background colour (white)  
HEX #FFFFFF

Sample preview  
example text showing contrast

WCAG 2.1 results  
Contrast ratio 21:1

- ▶ 1.4.3 Contrast (Minimum) (AA)
  - ✓ Pass (regular text)
  - ✓ Pass (large text)
- ▶ 1.4.6 Contrast (Enhanced) (AAA)
  - ✓ Pass (regular text)
  - ✓ Pass (large text)
- ▶ 1.4.11 Non-text Contrast (AA)
  - ✓ Pass (UI components and graphical objects)

# Color Contrast

WebAIM Contrast Checker  
([WebAIM: Contrast Checker](#))

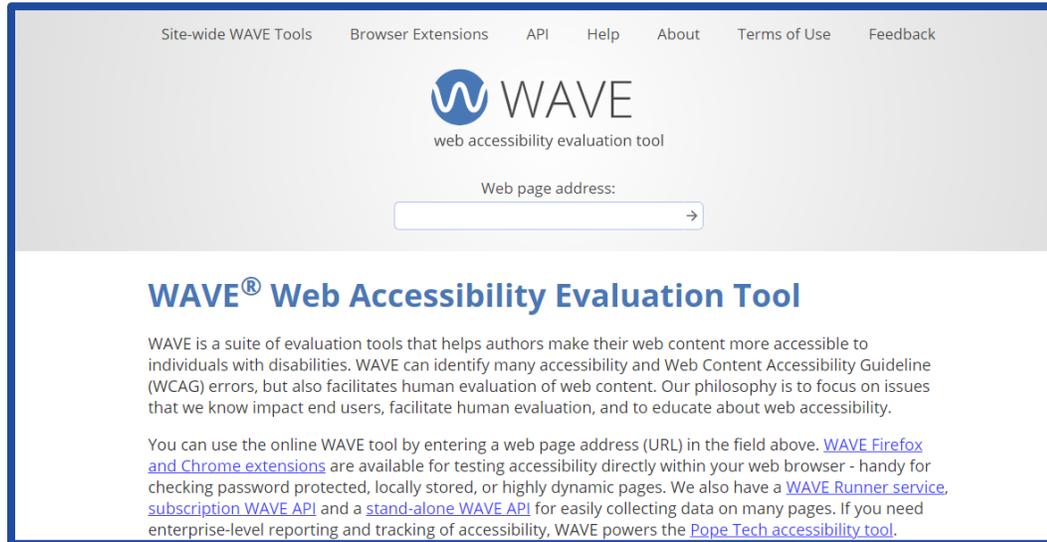
Microsoft Paint

Chrome Color Contrast  
Analyzer plug-in

The screenshot shows the WebAIM Contrast Checker interface. At the top, it says "Contrast Checker" and "Home > Resources > Contrast Checker". There are two color selection boxes: "Foreground Color" with a hex code of #FFFFFF and a lightness slider, and "Background Color" with a hex code of #000000 and a lightness slider. A double-headed arrow connects the two sliders. Below this, a green-bordered box displays "Contrast Ratio 21:1" with a "permalink" link underneath. The interface is divided into three sections: "Normal Text" with WCAG AA and AAA both marked "Pass" and a sample text box containing "The five boxing wizards jump quickly."; "Large Text" with WCAG AA and AAA both marked "Pass" and a sample text box containing "The five boxing wizards jump quickly."; and "Graphical Objects and User Interface Components" with WCAG AA marked "Pass" and a sample text input field containing "Text Input". A "Related Resources" sidebar on the right lists links to "Contrast and Color Accessibility", "Quick Reference: Testing Web Content for Accessibility", "Web Accessibility for Designers", and "Link Contrast Checker".

# Scanning Tools

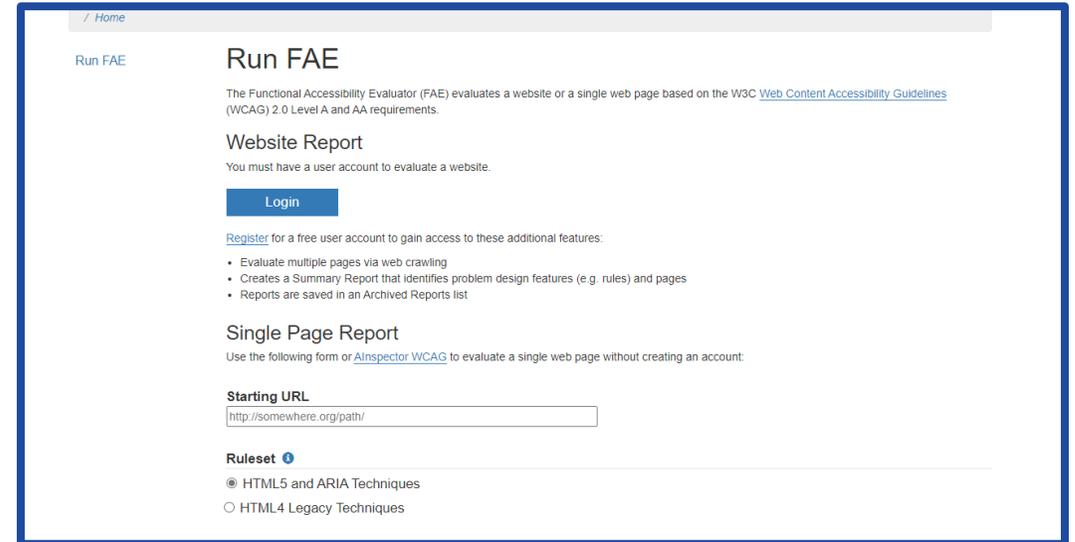
## WAVE – WebAIM toolset



The screenshot shows the homepage of the WAVE Web Accessibility Evaluation Tool. At the top, there is a navigation menu with links for Site-wide WAVE Tools, Browser Extensions, API, Help, About, Terms of Use, and Feedback. Below the menu is the WAVE logo and the text "web accessibility evaluation tool". A search bar labeled "Web page address:" with a right-pointing arrow is positioned below the logo. The main content area features the heading "WAVE® Web Accessibility Evaluation Tool" followed by a paragraph describing the tool's purpose: "WAVE is a suite of evaluation tools that helps authors make their web content more accessible to individuals with disabilities. WAVE can identify many accessibility and Web Content Accessibility Guideline (WCAG) errors, but also facilitates human evaluation of web content. Our philosophy is to focus on issues that we know impact end users, facilitate human evaluation, and to educate about web accessibility." Below this is another paragraph: "You can use the online WAVE tool by entering a web page address (URL) in the field above. [WAVE Firefox and Chrome extensions](#) are available for testing accessibility directly within your web browser - handy for checking password protected, locally stored, or highly dynamic pages. We also have a [WAVE Runner service](#), [subscription WAVE API](#) and a [stand-alone WAVE API](#) for easily collecting data on many pages. If you need enterprise-level reporting and tracking of accessibility, WAVE powers the [Pope Tech accessibility tool](#)."

[WAVE Web Accessibility Evaluation Tool  
\(webaim.org\)](https://webaim.org)

## Functional Accessibility Evaluator



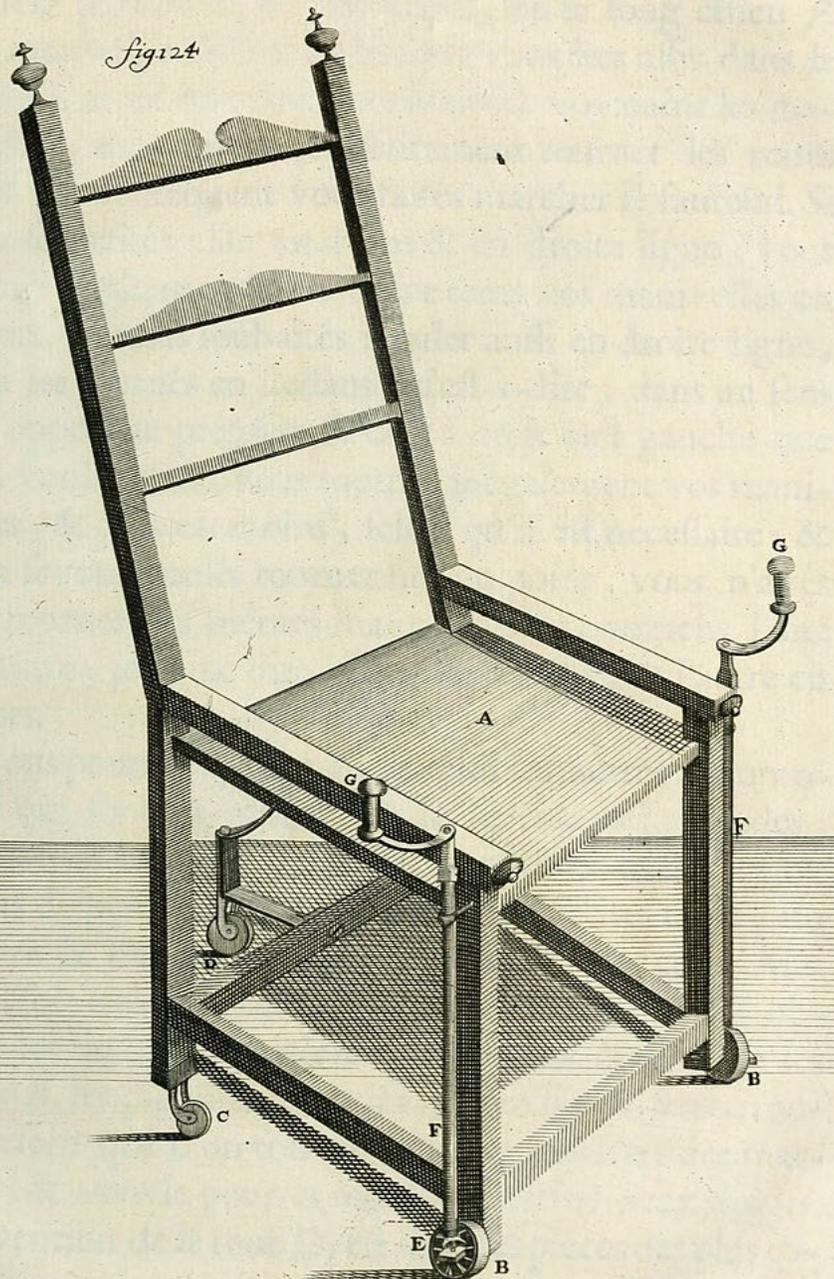
The screenshot shows the "Run FAE" interface of the Functional Accessibility Evaluator. The page title is "Run FAE". Below the title, it states: "The Functional Accessibility Evaluator (FAE) evaluates a website or a single web page based on the W3C [Web Content Accessibility Guidelines](#) (WCAG) 2.0 Level A and AA requirements." There are two main sections: "Website Report" and "Single Page Report". The "Website Report" section includes a "Login" button and a link to "Register" for a free user account. Below this, it lists features: "Evaluate multiple pages via web crawling", "Creates a Summary Report that identifies problem design features (e.g. rules) and pages", and "Reports are saved in an Archived Reports list". The "Single Page Report" section includes a "Starting URL" input field with the placeholder text "http://somewhere.org/path/" and a "Ruleset" section with two radio button options: "HTML5 and ARIA Techniques" (which is selected) and "HTML4 Legacy Techniques".

[Run FAE : Functional Accessibility  
Evaluator 2.1 \(illinois.edu\)](https://www.accessibility.com/Products/Functional-Accessibility-Evaluator-2.1)

# What is Assistive Technology?

The United States Access Board defines assistive technology as:

*Any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities.*



# Adaptive and Assistive Technologies in History

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First verified use of wheelchairs dates to the 5<sup>th</sup> – 6<sup>th</sup> century BCE – China

Hearing aids date back to the 17<sup>th</sup> century and were adopted in mainstream Europe by the close of the 18<sup>th</sup> century when hearing aids move from a conceptual stage to implementation

In 1824 Louis Braille learned about a writing system “night writing” developed that used heavy and raised black ink

In 1971, Julia Child’s cooking show became the first television program to broadcast with captioning technology

# Modern Advances

Audio Books/Talking  
Books

Text-messaging

Voice Assistants – SIRI,  
Alexa, Hey Google



# Screenreaders

JAWS – Freedom Scientific

Microsoft Narrator

NVDA

TalkBack – Google

VoiceOver – Apple



# Screen magnification software

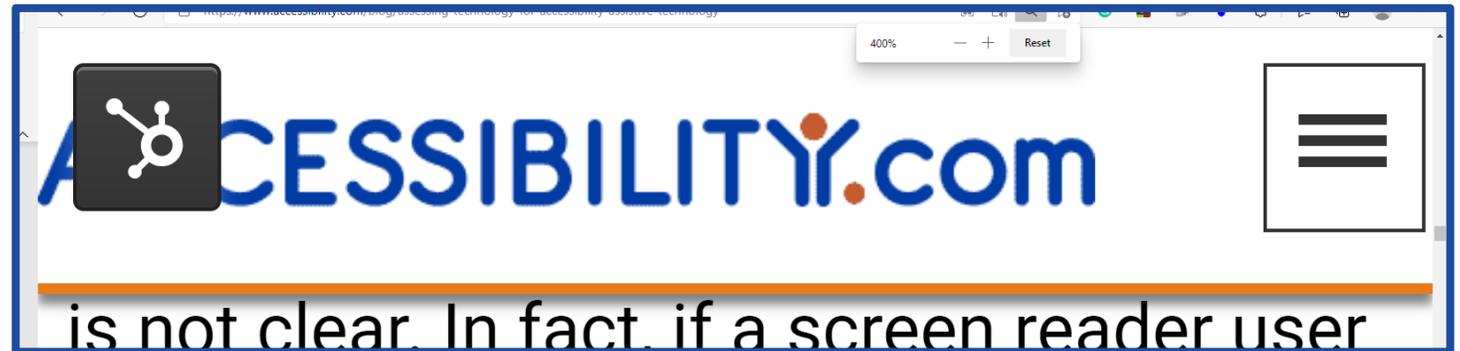
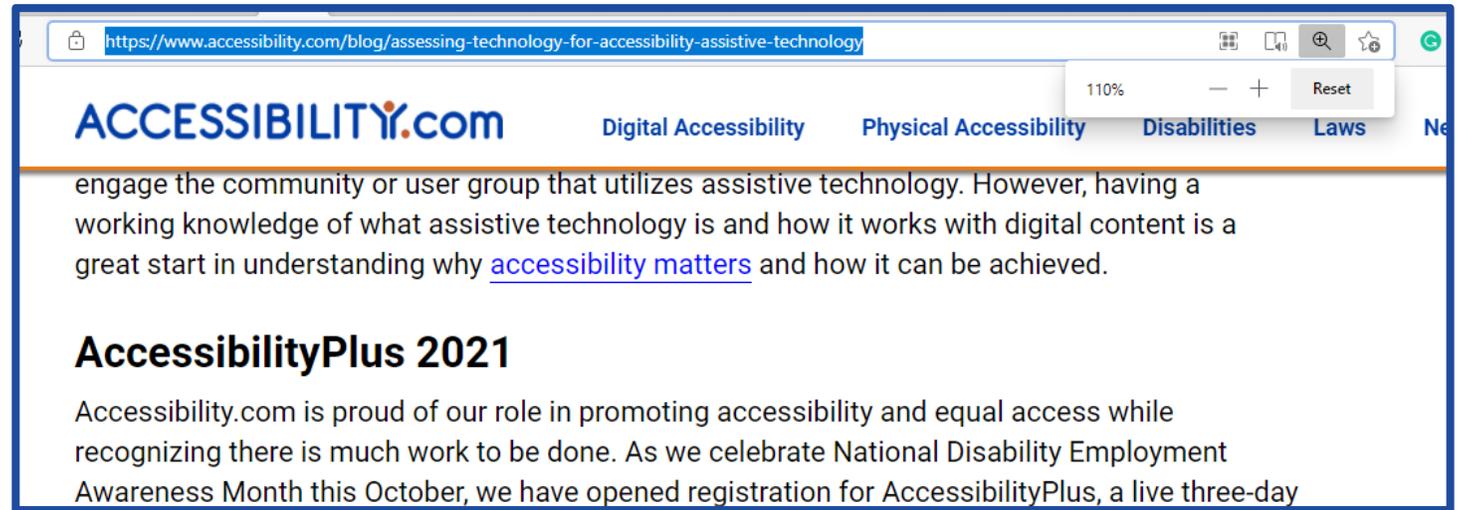
ZoomText

MAGic

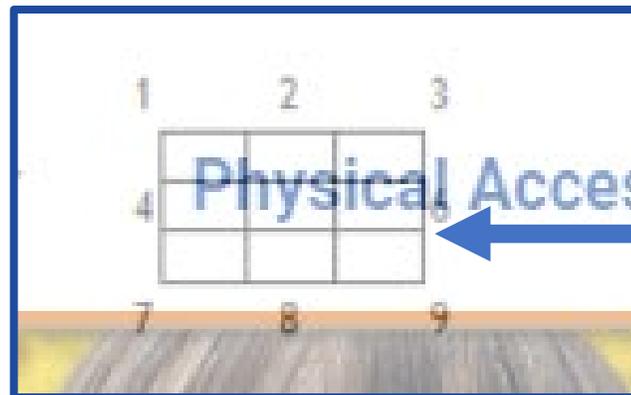
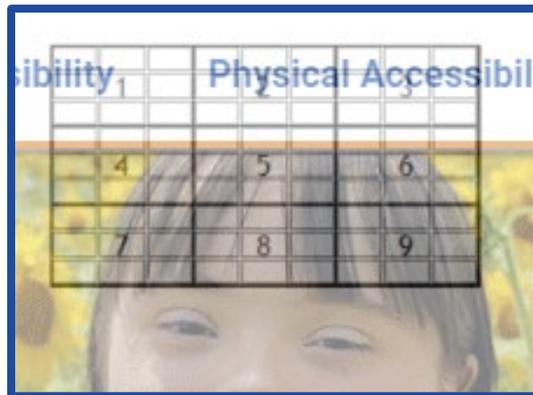
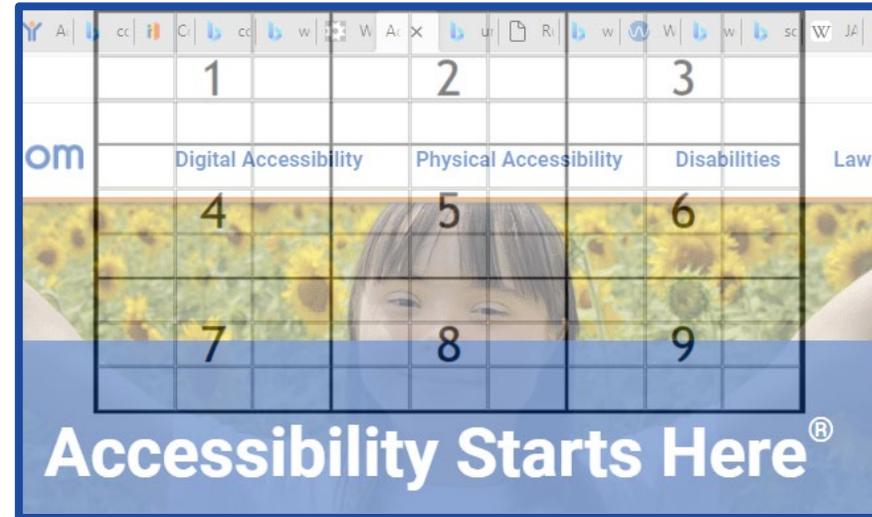
Windows Magnifier

Pinch to Zoom

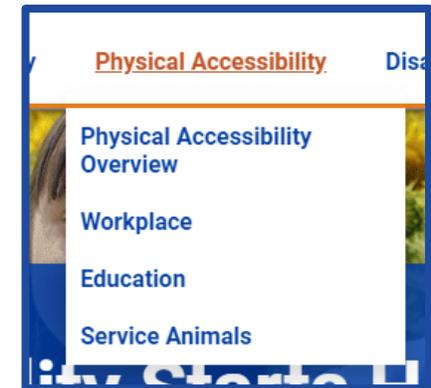
CTRL+/CTRL-



# Speech Input - SG



Say "Click 5" to activate mouse left click on area



# Speech Input



The screenshot shows a web browser window with the URL <https://www.accessibility.com/accessibilityplus?nsLang=en>. The page content includes the Accessibility.com logo, the text "Presents AccessibilityPlus", the dates "October 12-14, 2021", and the subtitle "The Global Conference: How Businesses Empower Accessibility and Why They Should". A speech input overlay is visible in the top right corner, featuring a microphone icon and the text "Say a number, then say OK".

# WCAG-EM: Website Accessibility Conformance Evaluation Methodology

## Use of WCAG-EM

(<https://www.w3.org/WAI/eval/report-tool>):

- Web consultants who want to analyze accessibility
- Web accessibility evaluation service providers
- Website developers
- Website owners and procurement officers
- Website compliance and quality assurance manager
- Training staff and educators
- Web masters and content authors

## Overview

Welcome to the [updated](#) WCAG-EM Report Tool. You can open your existing reports with this tool. The [previous version](#) is available, and is no longer supported.

Dismiss

WCAG-EM Report Tool turns your accessibility evaluation findings into a report. It is based on the Web Content Accessibility Guidelines Evaluation Methodology [WCAG-EM](#).

Start New Report

Open Report

+Expand All Sections

—Collapse All Sections

+ Tips for using this tool

+ About this tool

+ How this tool works

# Define the Evaluation Scope

1. Website Name
2. Scope of the Website
3. WCAG Version
4. Conformance Target
5. Accessibility Support Baseline
6. Additional Evaluation Requirements

WCAG-EM Report Tool

Overview 1. Define Scope 2. Explore Website 3. Select Sample 4. Audit Sample 5. Report Findings View Report

## Step 1: Define the Evaluation Scope

Define the overall parameters and scope of the evaluation. Ideally, this is done with the person who commissioned the evaluation (who may or may not be the website owner), to ensure common expectations about the scope of the evaluation.

Step 1: Define the Evaluation Scope

Website name Show info +

Scope of the website Show info +

WCAG Version Show info +  
WCAG 2.1

Conformance target Show info +  
Level AA

Accessibility support baseline Show info +

Additional evaluation requirements Show info +

Your report Hide >

Reported on 0 of 50 WCAG 2.1 AA Success Criteria.

Perceivable 0 of 20

Operable 0 of 17

Understandable 0 of 10

Robust 0 of 3

View Report

# Explore the Target Website

1. Web technologies relied upon
2. Add web technologies
3. Optional Exploration Notes
  1. Essential functionality of the website
  2. Variety of web page types

The screenshot displays the WCAG-EM Report Tool interface. At the top, a blue navigation bar contains the title "WCAG-EM Report Tool" and the W3C Web Accessibility Initiative logo. Below the navigation bar, a breadcrumb trail shows the current step: "2. Explore Website".

The main content area is titled "Step 2: Explore the Target Website". It contains the following text: "Explore the website to understand its purpose, functionality, and use. This step helps you determine which web pages to use for the evaluation in the next steps. Identify the web technologies used to provide the website and, if you want, take notes on other aspects of the website. Usually it is best to get input from the website owners and developers for this step."

Below the text, there is a section titled "Web Technologies Relied Upon" with a "Show Info" button. It lists several technologies with checkboxes: HTML, CSS, WAI-ARIA, JavaScript, SVG, and PDF. Below this list is an "Add web technology" section with two input fields: "Web Technology:" and "Specification Address (URL):", followed by an "Add" button.

Below the "Add web technology" section is a section titled "Optional Exploration Notes". It contains the following text: "This section lets you record information during your website exploration. These notes are provided in the next step, to help you select a sample of web pages for evaluation. **These notes are not included in the final report.** They are saved when you save the file, and available when you later reload the file". Below this text are two text input areas: "Essential functionality of the website" and "Variety of web page types", each with a "Show Info" button.

On the right side of the interface, there is a sidebar titled "Your report" with a "Hide" button. It shows progress indicators for various success criteria: "Reported on 0 of 50 WCAG 2.1 AA Success Criteria", "Perceivable 0 of 20", "Operable 0 of 17", "Understandable 0 of 10", and "Robust 0 of 3". At the bottom of the sidebar is a "View Report" button.

# Select a Representative Sample

1. Variety of web page types
2. Structured Sample Web Pages
3. Randomly Selected Sample

**WCAG-EM Report Tool** W3C Web Accessibility Initiative WAI

Overview | 1. Define Scope | 2. Explore Website | **3. Select Sample** | 4. Audit Sample | 5. Report Findings | View Report

## Step 3: Select a Representative Sample

Select web pages for evaluation. The notes that you took during exploration in the previous step are provided here, to help you select the web pages. Ensure that the web pages selected are representative of the target website.

Step 3: Select a Representative Sample

### Structured Sample

Essential functionality (optional notes from previous step):

### Variety of web page types (optional notes from previous step):

### Structured Sample Web Pages

[Show info](#) +

No pages defined for this list

### Randomly Selected Sample

[Show info](#) +

Based on your structured sample of 0 web pages, choose at least 0 randomly selected web pages (to meet the 10% requirement in WCAG-EM).

No pages defined for this list

#### Your report

[Hide](#) >

Reported on 0 of 50 WCAG 2.1 AA Success Criteria.

Perceivable	0 of 23
Operable	0 of 17
Understandable	0 of 10
Robust	0 of 3

# Audit the Selected Sample

WCAG-EM Report Tool

Overview 1. Define Scope 2. Explore Website 3. Select Sample 4. Audit Sample 5. Report Findings View Report

## Step 4: Audit the Selected Sample

Record the outcome from evaluating the web pages selected in the previous step. Compare the results between the structured page and randomly selected pages, and if needed, adjust the selected sample in the previous step.

Step 4: Audit the Selected Sample

**WCAG version**

- WCAG 2.1
- Added in WCAG 2.1
- WCAG 2.0

**Conformance level**

- Level A
- Level AA

**Add results for pages**

No sample available.

**1 Perceivable**

**1.1 Text Alternatives**

**1.1.1: Non-text Content** Level A

Understanding 1.1.1 How to meet 1.1.1

All non-text content that is presented to the user has a text alternative that serves the equivalent purpose, except for the situations listed below. [Show full description](#)

**Entire sample**

Outcome: **Not checked** [View in report](#)

Observations:

BETA

Add data from other (automated) tests [i](#)

**Import data**  
(EARL as JSON-LD)

## 1.4.4: Resize text Level AA

Understanding 1.4.4 How to meet 1.4.4

Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality.

### Entire sample

Outcome: **Passed**

Observations: [View in report](#)

Text can be resized to 400% without loss of content or functionality.

## 1.4.5: Images of Text Level AA

Understanding 1.4.5 How to meet 1.4.5

If the technologies being used can achieve the visual presentation, text is used to convey information rather than images of text except for the following:

Show full description [-](#)

- Customizable:** The image of text can be visually customized to the user's requirements;
- Essential:** A particular presentation of text is essential to the information being conveyed.

### Entire sample

Outcome: **Not present**

Observations: [View in report](#)

No images of text observed.

# Report the Evaluation Findings

WCAG-EM Report Tool

Overview 1. Define Scope 2. Explore Website 3. Select Sample 4. Audit Sample 5. Report Findings

## Step 5: Report the Evaluation Findings

Provide additional information about the evaluation that you want included in the report. The evaluation findings that you entered in the previous step are included below under 'Detailed audit results' for review and to help you write the executive summary.

Step 5: Report the Evaluation Findings

Report title Show info +  
Accessibility.com AccessibilityPlus Report

Evaluation commissioner Show info +  
Evaluator Guy

Evaluator Show info +  
Kevin McDaniel

Evaluation date Show info +  
Tue Sep 28 2021

Executive summary Show info +  
No accessibility issues identified.

WCAG-EM Report Tool

Overview 1. Define Scope 2. Explore Website 3. Select Sample 4. Audit Sample 5. Report Findings View Report

## Accessibility.com AccessibilityPlus Report

Download Report (HTML) Download Report (JSON)

### About the Evaluation

Report Creator : **Kevin McDaniel**  
Evaluation Commissioner : **Evaluator Guy**  
Evaluation date : **Tue Sep 28 2021**

Edit

### Executive Summary

No accessibility issues identified.

Edit

### Scope of the Evaluation

Website name : **Accessiblilty.com**  
Scope of the website : **Our mission is to create objective and trustworthy information and resources to become a catalyst for equal access to the physical and digital worlds.**  
WCAG Version : **2.1**

Questions?

