

nextnano Software Accessibility Evaluation Report

Executive Summary

This report describes the conformance of the nextnano Software with [W3C's Web Content Accessibility Guidelines \(WCAG\)](#).

Based on this evaluation, the nextnano Software is close to meeting WCAG 2.1, Conformance Level A. Partially conforming to Level AA as well. Detailed review results are available below.

Scope of Review

Full software: nextnano Graphical User Interface (GUI) "nextnanomat" Version 4.3.10, date 2021-Dec-14.

Reviewers

Carola Burkl, Developer of nextnanomat (GUI)

Review Process

Conformance was tested for WCAG 2.1 Level A and AA.

Manual review based on Praxent Accessibility Guidelines adapted for software https://praxent.com/wp-content/uploads/2020/01/Accessibility_Guidelines_Linked.pdf.

Compatibility with Windows built-in accessibility tools tested. Compatibility with screen reader NVDA tested.

Results

Interpretative summary of review results

Mostly conformant on WCAG 2.1 Level A. On some functionality conformance up to Level AA is achieved.

Detailed results

Audio

No audio

Video

No video

Content

- Meaningful Order (1.3.2) [A] ⇒ yes
- Sensory Capabilities (1.3.3) [A] ⇒ yes

- Under three flashes (2.3.1 & 2.2.2) [A] ⇒ yes
- Images of text (1.4.5) [AA] ⇒ yes
- Text Size & Spacing (1.4.12 & 1.4.4) [AA] ⇒ partially
 - Compatible with screen magnifier at least up to 300% without loss of functionality or content.
- Content on Hover & Focus (1.4.13) [AA] ⇒ no
 - Content present on hover cannot be dismissed.
 - Hover content does not block region of mouse pointer.
- Alternative Text (1.1.1) [A] ⇒ partially
 - All images and non-text content of software have alternative text. ⇒ yes
 - Visual output of simulation results is not text interpreted. But result data can be viewed as text file as well.
- Page titles (2.4.2) [A] ⇒ yes
- Descriptive headings & labels (2.4.6) [AA] ⇒ partially
 - Buttons of main menu ⇒ yes (same functionality as buttons of tab pages)
 - Buttons of tab pages ⇒ no
- Language Changes (3.1.2) [AA] ⇒ no

Navigation & Architecture

- Clear text links (2.4.4) [A] ⇒ yes
- Multiple Paths (2.4.5) [AA] ⇒ yes (Functionality of buttons can be accessed via buttons or navigation menu)

Interface Elements

- Form Labels & Instructions (3.3.2) [A] ⇒ yes
 - All forms and input fields are labeled
- Label in name (2.5.3) [A] ⇒ partially
- Consistent Identification (3.2.4) [AA] ⇒ no
- Name, Role, Value (4.1.2) [A] ⇒ yes, although name is not always descriptive
- Consistent Identification (3.2.4) [AA] - not relevant: no corresponding representation in non-html software

Interactions

- Focus order (2.4.3) [A] ⇒ no
- No focus change (3.2.1) [A] ⇒ yes
- No input change (3.2.2) [A] ⇒ yes
- Error identification (3.3.1) [A] ⇒ yes
- Keyboard focus visible (2.4.7) [AA] ⇒ yes
- Error suggestions (3.3.3) [AA] ⇒ yes
- Error preventions (3.3.4) [AA] – not relevant: no corresponding representation in software

- Pointer gestures (2.5.1) [A] – not relevant: no high precise pointer movements necessary
- Pointer Cancellations (2.5.2) [A] – no
- Motion actuation (2.5.4) [A] – not relevant: no motion functionality is used
- Keyboard only (2.1.1) [A] ⇒ no
 - Inside a tab, yes. But to change tabs, no.
 - Logical tab order ⇒ partially
- No keyboard traps (2.1.2) [A] ⇒ no
- Character Key Shortcuts (2.1.4) [A] ⇒ yes (only active at focus)
- Adjustable Time (2.2.1) [A] ⇒ not relevant: no existing time limits

Visibility

- Use of color (1.4.1) [A] – no
 - Visualization of 2D or 3D data in the output tab uses heat maps to represent data values.
 - However, the color maps include choices for different types of color blindness as well as monochromatic options.
- Orientation (1.3.4) [AA] ⇒ yes (GUI can be resized to custom preference)
- Text & Image contrast (1.4.3) [AA] ⇒ yes
- Additional element contrast (1.4.11) [AA] – no?

Code

- Clean code (4.1.1) [A] ⇒ not relevant: no html in software
- Reflow (1.4.10) ⇒ yes

Testing

- Assistive technologies
 - Screen reader NVDA tested
 - Screen magnifier (Windows) tested, up to 400%
 - Color Inversion (Windows) tested
 - Display increased App size (Windows) tested, up to 175%
 - Make text bigger (Windows) – does not work well
 - High contrast (Windows)
 - Black background does not work
 - Other background works but is not recommended
- Tested and recommended on Windows 10

References

1. Web Content Accessibility Guidelines (WCAG) Overview
<https://www.w3.org/WAI/intro/wcag>

2. Web Content Accessibility Guidelines 2.1
<https://www.w3.org/TR/WCAG21/>
3. Techniques for WCAG 2.1
<https://www.w3.org/WAI/WCAG21/Techniques/>
4. Accessibility Evaluation Resources
<http://www.w3.org/WAI/eval/>
5. Praxent Accessibility Guidelines Checklist
https://praxent.com/wp-content/uploads/2020/01/Accessibility_Guidelines_Linked.pdf