

Audit Report

Studo App Accessibility

Subject:	“Studo App” Version 4.44.2 (Android) “Studo App” Version 4.44.1 (iOS)
Type of test:	Audit
Basis:	EN 301 549 v3.2.1 WCAG 2.1 Guidelines
Test specifications:	Compliance with digital accessibility guidelines
Period of assessment:	April 2023 to May 2023
Report date:	17.05.2023
Company:	Student & Campus Services GmbH
Address:	Joanneumring 3, A-8010 Graz
Results:	The requirements of the audit are fulfilled.

Introduction

“EN 301 549 ‘Accessibility requirements for ICT products and services’ is a European Standard. It defines the requirements that products and services based on information and communication technologies (ICT) should meet to enable their use by persons with disabilities.” – [European Telecommunications Standards Institute](#)

Version 3.2.1 of EN 301 549 builds heavily on WCAG 2.1. E.g. conformance with WCAG Level AA is equivalent to conforming with several clauses in EN 301 549:

“Web Content Accessibility Guidelines (WCAG) 2.1 defines how to make Web content more accessible to people with disabilities. Accessibility involves a wide range of disabilities, including visual, auditory, physical, speech, cognitive, language, learning, and neurological disabilities. Although these guidelines cover a wide range of issues, they are not able to address the needs of people with all types, degrees, and combinations of disability. These guidelines also make Web content more usable by older individuals with changing abilities due to aging and often improve usability for users in general.

WCAG 2.1 is developed through the [W3C process](#) in cooperation with individuals and organizations around the world, with a goal of providing a shared standard for Web content accessibility that meets the needs of individuals, organizations, and governments internationally. WCAG 2.1 builds on WCAG 2.0 [WCAG20], which in turn built on WCAG 1.0 [[WAI-WEBCONTENT](#)] and is designed to apply broadly to different Web technologies now and in the future, and to be testable with a combination of automated testing and human evaluation.” – [W3C, Web Content Accessibility Guidelines 2.1](#)

Occasion

We have conducted an audit for the compliance of web accessibility guidelines for the Studo App operated by Student & Campus Services GmbH. Based on Version 3.2.1 of EN 301 549 (Software) which is built heavily on the WCAG 2.1 web accessibility guidelines, the Studo App is evaluated with the objective of continuous optimization.

Company

Studo is an educational technology company based in Graz (AT), Leverkusen (DE), and Maribor (SI) and offers digital solutions for students and universities. Studo created an organisation app for students which is currently used by over 400,000 daily active users in eight countries, most of whom are students, but also university employees. More than 40 universities are already cooperation partners of Studo. The app organises courses, timetables, and emails and offers a platform for students at the respective universities with the integrated chat and news feed functions.

Subject of the audit

The subject of the audit is the app "Studo", a mobile browser app which allows students to access the digital services of higher education institutions with their mobile device.

Disclaimer: *With this review, Studo only refers to features and content created by Studo itself. No guarantee can be given for content from partner companies and universities that is shown e.g. in the Studo App news feed. However, Studo will seek contact with partner companies to advise them on how to optimize their content with regard to accessibility.*

Audit concept

In accordance with the mandate, the audit intends to provide a statement on whether all technical measures have been taken to comply with general accessibility guidelines. The assessment is based on Version 3.2.1 of EN 301 549 (Software) which is built heavily on the WCAG 2.1 web accessibility guidelines.

Implementation

The testing period was April 2023 to May 2023. The app was tested against above mentioned guidelines. In addition, all amendments which have been introduced with respect to improved accessibility have been documented.

Terminology

EN 301 549 just like the WCAG 2.1 web accessibility guidelines consists of **four principles** that provide the foundation for web accessibility: *perceivable*, *operable*, *understandable*, and

robust. EN 301 549 is extended with guidelines concerning *Interoperability with assistive technology*, *Documented accessibility usage*, *User preferences* and *Authoring tools*.

With the following terms it is indicated whether the criteria have been met:

"OK" indicates points whose requirements have been checked with a positive result (no deviation, no finding).

"Done" indicates a subsequent adjustment in accordance with the given requirements, which resulted in a positive result in the course of a subsequent check.

"Failed" indicates points whose requirements have been checked with a negative result.

"Not relevant" indicates that features that certain criteria are referring to do not exist within the Studo App.

EN 301 549 also divides Information and Communication Technology (ICT) into two categories: **open and closed functionalities**. As a smartphone application, the Studo App depends on the operating system of the user's device being able to support access to assistive technology. As of today, the two main operating systems, iOS and Android, both support assistive technology. Therefore, the Studo App is defined as "open functionality", supporting the access by assistive technology.

Results

Compliance with the requirements of the guidelines by Version 3.2.1 of EN 301 549 (Software) was checked on the basis of the practical use of the Studo App using all primary use-cases in the app and exploring via random sampling. Deviations, findings and recommendations resulting from this are presented below.

Results – 1. Perceivable

1.1 Text alternatives | Non-text Content:

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.

Criteria	Description	Comment	Evaluation
Non-text content (open functionality)	If non-text content is a control or accepts user input, then it has a name that describes its purpose.		OK

1.2 Time-based Media:

Alternatives for time-based media have to be provided.

As of this audit, the Studo App does not have a feature to output time-based media. Therefore, this section is not relevant.

Criteria	Description	Comment	Evaluation
Audio-only and video-only (Pre-recorded - open functionality)	An alternative for time-based media is provided that presents equivalent information for prerecorded audio-only content.		Not relevant
Captions (Pre-recorded)	Captions are provided for all pre-recorded audio content in synchronized media, except when the media is a media alternative for text and is clearly labeled as such.		Not relevant
Audio description or media alternative (Pre-recorded - open functionality)	An alternative for time-based media or audio description of the prerecorded video content is provided for synchronized media, except when the media is a media alternative for text and is clearly labeled as such.		Not relevant
Captions (live)	Captions are provided for all live audio content in synchronized media.		Not relevant
Audio description (pre-recorded)	Audio description is provided for all prerecorded video content in synchronized media.		Not relevant

1.3 Adaptable:

Create content that can be presented in different ways (for example simpler layout) without losing information or structure.

Criteria	Description	Comment	Evaluation
Info and relationships (open functionality)	Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text.		OK
Meaningful sequence (open functionality)	When the sequence in which content is presented affects its meaning, a correct reading sequence can be programmatically determined.		OK
Sensory characteristics	Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, color, size, visual location, orientation, or sound.		OK
Orientation	Content does not restrict its view and operation to a single display orientation, such as portrait or landscape, unless a specific display orientation is essential.		OK
Identify Input Purpose (open functionality)	The purpose of each input field collecting information about the user can be programmatically determined when: The input field serves a purpose identified in the Input Purposes for User Interface Components section; and The content is implemented using technologies with support for identifying the expected meaning for form input data.		OK

1.4 Distinguishable:

Make it easier for users to see and hear content including separating foreground from background. These adjustments are made by the user in the system settings of the mobile device. The mobile app should react to these adjustments and adapt the design.

Criteria	Description	Comment	Evaluation
Use of Color	Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.		OK
Audio Control	If any audio in a software plays automatically for more than 3 seconds, either a mechanism is available to pause or stop the audio, or a mechanism is available to control audio volume independently from the overall system volume level.	As of this audit, the Studo App does not have a feature to output audio. Therefore, this section is not relevant.	Not relevant

	Since any part of a software that does not meet this success criterion can interfere with a user's ability to use the whole software, all content in the software (whether or not it is used to meet other success criteria) shall meet this success criterion.		
Contrast (Minimum)	The visual presentation of text and images of text has a contrast ratio of at least 4.5:1, except for large text (at least 3:1), incidental and logotypes.		OK
Resize Text (open functionality)	Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality.		OK
Images of Text (open functionality)	If the technologies being used can achieve the visual presentation, text is used to convey information rather than images of text except for customizable and essential text.	Alt text needed (news feed)	
Reflow	Content can be presented without loss of information or functionality, and without requiring scrolling in two dimensions for: Vertical scrolling content at a width equivalent to 320 CSS pixels; Horizontal scrolling content at a height equivalent to 256 CSS pixels; Except for parts of the content which require two-dimensional layout for usage or meaning.		OK
Non-text Contrast	The visual presentation of user interface components and graphical objects have a contrast ratio of at least 3:1 against adjacent color(s).		OK
Text Spacing	In content implemented using markup languages that support the text style properties named by WCAG 2.1, no loss of content or functionality occurs by setting all of the following and by changing no other style property.		OK
Content on Hover or Focus	Where receiving and then removing pointer hover or keyboard focus triggers additional content to become visible and then hidden, this mechanism is dismissible, hoverable and persistent.		OK

Results – 2. Operable

2.1 Keyboard accessible:

Make all functionality available for screen readers - VoiceOver (iOS) and TalkBack (Android).

Note: This part has been adapted to the system conditions of a mobile device.

Criteria	Description	Comment	Evaluation
Keyboard (open functionality)	All functionality of the content is operable through a keyboard interface without requiring specific timings		OK

	for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints.		
No Keyboard trap	If keyboard focus can be moved to a component of the software using a keyboard interface, then focus can be moved away from that component using only a keyboard interface, and, if it requires more than unmodified arrow or tab keys or other standard exit methods, the user is advised of the method for moving focus away.		OK
Character Key Shortcuts (open functionality)	If a keyboard shortcut is implemented in content using only letter (including upper- and lower-case letters), punctuation, number, or symbol characters, then at least one of the following is true: Mechanism can be turned off, can be remapped, or can be active only on focus.		OK

2.2 Enough time:

Provide enough time for users to read and use content.

Criteria	Description	Comment	Evaluation
Timing Adjustable	For each time limit that is set by the software, at least one of the following is true: <ul style="list-style-type: none"> • Turn off: The user is allowed to turn off the time limit before encountering it; or • Adjust: The user is allowed to adjust the time limit before encountering it over a wide range that is at least ten times the length of the default setting; or • Extend: The user is warned before time expires and given at least 20 seconds to extend the time limit with a simple action (for example, "press the space bar"), and the user is allowed to extend the time limit at least ten times; or • Real-time Exception: The time limit is a required part of a real-time event (for example, an auction), and no alternative to the time limit is possible; or • Essential Exception: The time limit is essential and extending it would invalidate the activity; or • 20 Hour Exception: The time limit is longer than 20 hours. 		OK
Pause, Stop Hide	For moving, blinking, scrolling, or auto-updating information, all of the following are true: <ul style="list-style-type: none"> - For all moving, flashing or scrolling information that starts automatically, lasts longer than 5 seconds and is presented in parallel with other content, there is a mechanism for users to pause, stop or hide it unless the movement, blinking or scrolling is part of an activity where it is essential. - For any auto-updating information that starts automatically and is presented in parallel with other content, there is a mechanism for users to pause, stop or hide it or control the frequency of the update, unless the auto-update is part of an activity where it is 		OK

	essential.		
--	------------	--	--

2.3 Seizures and Physical Reactions:

Do not design content in a way that is known to cause seizures or physical reactions.

Criteria	Description	Comment	Evaluation
Three flashes or below threshold	Software does not contain anything that flashes more than three times in any one second period, or the flash is below the general flash and red flash thresholds.		OK

2.4 Navigable:

Provide ways to help users navigate, find content, and determine where they are.

Criteria	Description	Comment	Evaluation
Focus Order	If software can be navigated sequentially and the navigation sequences affect meaning or operation, focusable components receive focus in an order that preserves meaning and operability.		OK
Link Purpose (in context)	The purpose of each link can be determined by the link text alone or by the link text together with its software-determined link context except in cases where the purpose of the link would be ambiguous to users in general.	Link purpose of news feed postings is not defined	
Headings and labels	Headings and labels describe a topic or purpose.		OK
Focus Visible	Any keyboard operable user interface has a mode of operation where the keyboard focus indicator is visible.		OK

2.5 Input Modalities:

Make it easier for users to operate functionality through various inputs beyond the keyboard.

Criteria	Description	Comment	Evaluation
Pointer Gestures	All functionality that uses multipoint or path-based gestures for operation can be operated with a single		OK

	pointer without a path-based gesture, unless a multipoint or path-based gesture is essential.		
Pointer Cancellation	For functionality that can be operated using a single pointer, at least one of the following is true: <ul style="list-style-type: none"> • No Down-Event: The down-event of the pointer is not used to execute any part of the function. • Abort or Undo: Completion of the function is on the up-event, and a mechanism is available to abort the function before completion or to undo the function after completion. • Up Reversal: The up-event reverses any outcome of the preceding down-event. • Essential: Completing the function on the down-event is essential. 		OK
Label in Name (open functionality)	For user interface components with labels that include text or images of text, the name contains the text that is presented visually.		OK
Motion Actuation	Functionality that can be operated by device motion or user motion can also be operated by user interface components and responding to the motion can be disabled to prevent accidental actuation, except when it is an supported interface or essential for the function.	Unclear if gesture shortcuts set in the operating system are supported	

Results – 3. Understandable

3.1 Readable:

Provide readable and understandable text content.

Criteria	Description	Comment	Evaluation
Language of software (open functionality)	The default human language of software can be programmatically determined.		OK

3.2 Predictable:

Make Web pages appear and operate in predictable ways.

Criteria	Description	Comment	Evaluation
On focus	When any user interface component receives focus, it does not initiate a change of context.		OK
On input	When any user interface component receives focus, it does not initiate a change of context.		OK

3.3 Input assistance

Help for users to avoid and correct mistakes.

Criteria	Description	Comment	Evaluation
Error Identification (open functionality)	If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text.		OK
Labels or Instructions	Labels or instructions are provided when content requires user input.		OK
Error Suggestion	If an input error is automatically detected and suggestions for correction are known, then the suggestions are provided to the user, unless it would jeopardize the security or purpose of the content.		OK
Error Prevention (legal, financial, data)	For software that cause legal commitments or financial transactions for the user to occur, that modify or delete user controllable data in data storage systems, or that submit user test responses, at least one of the following is true: 1) Reversible: Submissions are reversible. 2) Checked: Data entered by the user is checked for input errors and the user is provided an opportunity to correct them. 3) Confirmed: A mechanism is available for reviewing, confirming, and correcting information before finalizing the submission.		OK

Results – 4. Robust

4.1 Compatibility:

Maximize compatibility with current and future user agents, including assistive technologies.

Criteria	Description	Comment	Evaluation
Parsing (open functionality)	For software that uses markup languages, in such a way that the markup is separately exposed and available to assistive technologies and accessibility features of software or to a user-selectable user agent, elements have complete start and end tags, elements are nested according to their specifications, elements do not contain duplicate attributes, and any IDs are unique, except where the specifications allow these features.		OK
Name, role,	For all user interface components (including but not		OK

value (open functionality)	limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies.		
Status Messages (open functionality)	In content implemented using markup languages, status messages can be programmatically determined through role or properties such that they can be presented to the user by assistive technologies without receiving focus.		OK

Results – 5. Interoperability with assistive technology

As mentioned in the introduction, the Studo App as a smartphone application is dependent on the respective operating system of the user's device supporting access to assistive technology. Since the two main operating systems, iOS and Android, are both interoperable with assistive technology, the Studo App also supports assistive technology.

5.1 Accessibility services:

Maximize compatibility with current and future user agents, including assistive technologies.

Criteria	Description	Comment	Evaluation
Platform accessibility service support for software that provides a user interface	Platform software shall provide a set of documented platform services that enable software that provides a user interface running on the platform software to interoperate with assistive technology.		OK
Platform accessibility service support for assistive technologies	Platform software shall provide a set of documented platform accessibility services that enable assistive technology to interoperate with software that provides a user interface running on the platform software.		OK
Use of accessibility services	Where the software provides a user interface it shall use the applicable documented platform accessibility services. If the documented platform accessibility services do not allow the software to meet the applicable requirements of clauses 11.5.2.5 to 11.5.2.17, then software that provides a user interface shall use other documented services to interoperate with assistive technology.		OK
Assistive	Where the ICT is assistive technology it shall use the documented platform accessibility services.		OK

technology			
Object information	Where the software provides a user interface it shall, by using the services as described in clause 11.5.2.3, make the user interface elements' role, state(s), boundary, name, and description programmatically determinable by assistive technologies.		OK
Row, column, and headers	Where the software provides a user interface it shall, by using the services as described in clause 11.5.2.3, make the row and column of each cell in a data table, including headers of the row and column if present, programmatically determinable by assistive technologies.		OK
Values	Where the software provides a user interface, it shall, by using the services as described in clause 11.5.2.3, make the current value of a user interface element and any minimum or maximum values of the range, if the user interface element conveys information about a range of values, programmatically determinable by assistive technologies.		OK
Label relationships	Where the software provides a user interface it shall expose the relationship that a user interface element has as a label for another element, or of being labelled by another element, using the services as described in clause 11.5.2.3, so that this information is programmatically determinable by assistive technologies.		OK
Parent-child relationships	Where the software provides a user interface it shall, by using the services as described in clause 11.5.2.3, make the relationship between a user interface element and any parent or children elements programmatically determinable by assistive technologies.		OK
Text	Where the software provides a user interface it shall, by using the services as described in clause 11.5.2.3, make the text contents, text attributes, and the boundary of text rendered to the screen programmatically determinable by assistive technologies.		OK
List of available actions	Where the software provides a user interface it shall, by using the services as described in clause 11.5.2.3, make a list of available actions that can be executed on a user interface element, programmatically determinable by assistive technologies.		OK
Execution of available actions	Where permitted by security requirements, software that provides a user interface shall, by using the services as described in clause 11.5.2.3, allow the programmatic execution of the actions exposed according to clause 11.5.2.11 by assistive technologies.		OK
Tracking of focus and selection	Where software provides a user interface it shall, by using the services as described in clause 11.5.2.3, make information and mechanisms necessary to track focus, text insertion point, and selection attributes of		OK

attributes	user interface elements programmatically determinable by assistive technologies.		
Modification of focus and selection attributes	Where permitted by security requirements, software that provides a user interface shall, by using the services as described in clause 11.5.2.3, allow assistive technologies to programmatically modify focus, text insertion point, and selection attributes of user interface elements where the user can modify these items.		OK
Change notification	Where software provides a user interface it shall, by using the services as described in clause 11.5.2.3, notify assistive technologies about changes in those programmatically determinable attributes of user interface elements that are referenced in requirements 11.5.2.5 to 11.5.2.11 and 11.5.2.13.		OK
Modifications of states and properties	Where permitted by security requirements, software that provides a user interface shall, by using the services as described in clause 11.5.2.3, allow assistive technologies to programmatically modify states and properties of user interface elements, where the user can modify these items.		OK
Modifications of values and text	Where permitted by security requirements, software that provides a user interface shall, by using the services as described in clause 11.5.2.3, allow assistive technologies to modify values and text of user interface elements using the input methods of the platform, where a user can modify these items without the use of assistive technology.		OK

Results – 6. Documented accessibility usage

6.1 User control of accessibility features:

OK

Where software is a platform it shall provide sufficient modes of operation for user control over those platform accessibility features documented as intended for users.

6.2 No disruption of accessibility features:

OK

Where software provides a user interface it shall not disrupt those documented accessibility features that are defined in platform documentation except when requested to do so by the user during the operation of the software.

Results – 7. User preferences

OK

Where software is not designed to be isolated from its platform, and provides a user interface, that user interface shall follow the values of the user preferences for platform settings for: units of measurement, colour, contrast, font type, font size, and focus cursor except where they are overridden by the user.

Results – 8. Authoring tools

8.1 General (informative):

OK

For those creating web content authoring tools, ATAG 2.0 [i.32] provides information that can be of interest to those who want to go beyond these requirements.

8.2 Content technology:

OK

Authoring tools shall conform to clauses 11.8.2 to 11.8.5 to the extent that information required for accessibility is supported by the format used for the output of the authoring tool.

8.3 Accessible content creation:

OK

Authoring tools shall enable and guide the production of content that conforms to clauses 9 (Web content) or 10 (Non-Web content) as applicable.

8.4 Preservation of accessibility information in transformations

OK

If the authoring tool provides restructuring transformations or re-coding transformations, then accessibility information shall be preserved in the output if equivalent mechanisms exist in the content technology of the output.

8.5 Repair assistance

OK

If the accessibility checking functionality of an authoring tool can detect that content does not meet a requirement of clauses 9 (Web) or 10 (Non-web documents) as applicable, then the authoring tool shall provide repair suggestion(s).

8.6 Templates

OK

When an authoring tool provides templates, at least one template that supports the creation of content that conforms to the requirements of clauses 9 (Web) or 10 (Non-web documents) as applicable shall be available and identified as such.

Summary

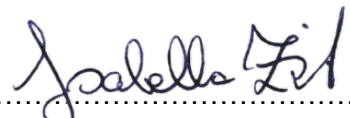
The compliance with the accessibility guidelines of the Studo App (Operating systems: Android, iOS) was examined and audited. The test used the requirements of the EN 301 549 v3.2.1 and WCAG 2.1 Web Accessibility Guidelines.

The result of the accessibility audit of "Studo App" is as follows:

The Studo App operated by Student & Campus Services GmbH provides the technical requirements for accessibility compliance.

Deficits in the implementation of the accessibility regulations were found in isolated cases, but these do not fundamentally affect the overall level of accessibility.

Graz, 17.05.2023


.....
Isabella Zick