



Improving CERN Web Login Accessibility

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15/08/2023

Introduction

- CERN's Single Sign-On is used by thousands of laboratory staff and researchers to authenticate every day.
- At the moment it needs some improvement in terms of usability for users with disabilities such as limited vision or colour blindness, motor impairment, etc.
- In this project, we address the accessibility needs of the SSO and other related websites run by the authentication team to enhance the overall user experience for all users.

CERN Accelerating science Directory

CERN Single Sign-On

Sign in with a CERN account

Username

Password

[Sign In](#)

[Forgot Password?](#)

Or use another login method

[Two-factor authentication](#)

[Kerberos](#)

By logging in, you agree to comply with the [CERN Computing Rules](#), in particular OCS. CERN implements the measures necessary to ensure compliance.

Sign in with your email or organisation

[Email - Guest Access](#)

[Home Organisation - eduGAIN](#)

Or sign in with a social account

By clicking on the buttons below, you consent to CERN's transfer of your login request to the social provider and to receive your account name, name and e-mail for authenticating you. See more details in our [Privacy Notice](#).


[Google](#) [LinkedIn](#)

[GitHub](#) [Facebook](#)

[Account](#)
Manage your account
Manage your eduGAIN settings

[Privacy](#)
Privacy Notice

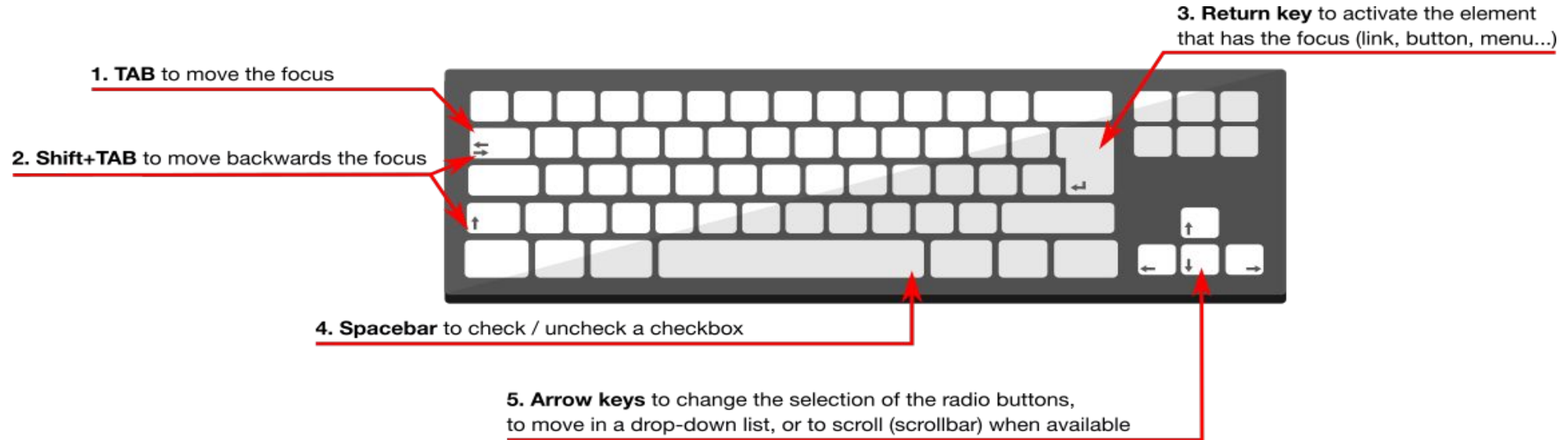
[Support](#)
Service Desk - +41 22 76 7777
Service Status



Navigation modes

How people with disabilities navigate websites

- Use of keyboard e.g “tab” key



- Screen readers - communicates the content displayed in audio or braille format e.g Chrome vox, NVDA and JAWS on windows, Voiceover for Mac.
- Voice commands, etc

Methodologies

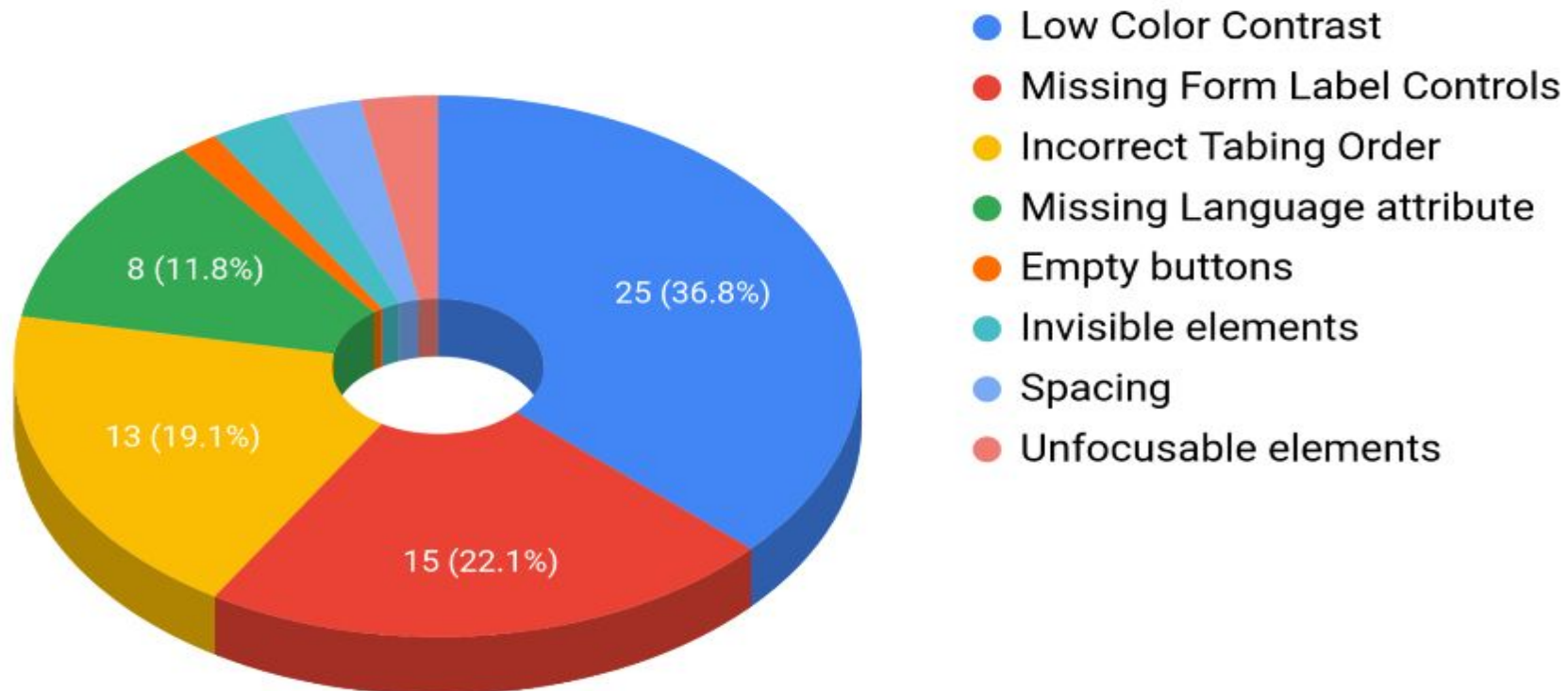
Testing of the SSO

- Web Content Accessibility Guidelines(**level 2(AA)**)
 - **P**erceivable - provide text alternatives for any non-text content
 - **O**perable - all functionality available on keyboard
 - **U**nderstandable - operate and appear in predictable ways
 - **R**obust - maximise compatibility with assistive technologies
- Tabbing(keyboard only)
- Screen reader(listening)
- Web Accessibility Evaluation Tools (WAVE)
- Web Disability Simulator
- Manual Testers (volunteers are welcome)

Issues found

Issues detected on the CERN SSO (68 issues on over 10 pages)

SSO Accessibility Issues



Solutions

How the issues detected were fixed(sample)

- **Low Color Contrast**

Username

Password

[Forgot Password?](#)

Increase font weight and make color darker.

Username

Password

[Sign In](#)

[Forgot Password?](#)

Total Color blindness

Username

Password

[Forgot Password?](#)

Email

Password

[Sign In](#)

[Forgot Password?](#)

Solutions

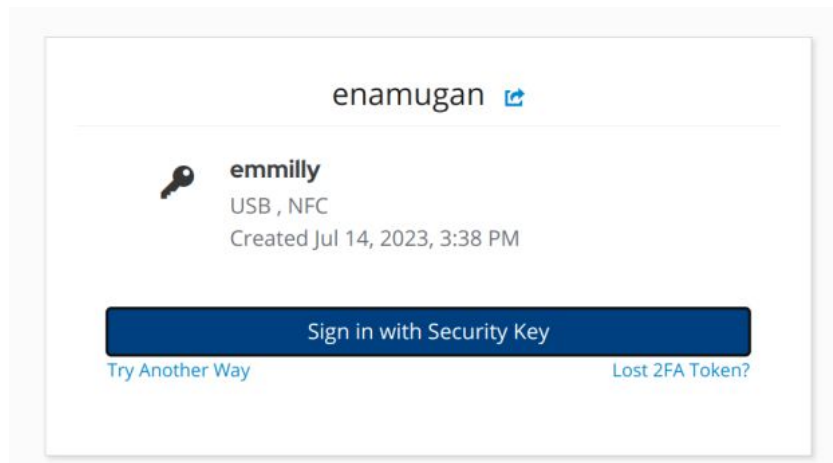
How issues found were fixed

- **Missing language attributes**

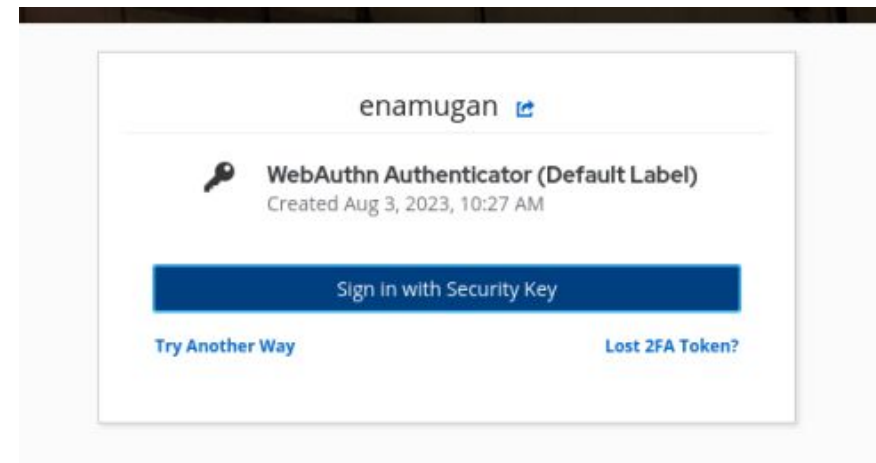
Add lang="en" to html tag

Indicates to the screen reader the language it should pronounce the content in.

- **Limited Spacing**



- **Spacing**



Overall

• Before

The screenshot shows the WAVE accessibility tool interface. The top left corner displays the WAVE logo and 'powered by WebAIM'. Below it, there is a 'Styles' toggle set to 'ON'. The 'Summary' section on the left shows the following statistics: 1 Error, 5 Contrast Errors, 4 Alerts, 3 Features, 13 Structural Elements, and 11 ARIA. A 'View details >' button is located below these statistics. The main content area is titled 'Sign in with a CERN account' and contains a 'Username' field with an ARIA error message: '*aria-invalid=""'. Below the field is a 'Password' field with another ARIA error message: '*aria-invalid=""'. There is a 'Forgot Password?' link and a 'Sign In' button. Below the login fields, there are options for 'Two-factor authentication' and 'Kerberos'. At the bottom, there is a note: 'By logging in, you agree to comply with the CERN Computing Rules, in particular OCS. CERN implements the measures necessary to ensure compliance.' A 'Code' icon is visible in the bottom right corner.

• After

The screenshot shows the WAVE accessibility tool interface after fixes. The top left corner displays the WAVE logo and 'powered by WebAIM'. Below it, there is a 'Styles' toggle set to 'ON'. The 'Summary' section on the left shows the following statistics: 0 Errors, 0 Contrast Errors, 0 Alerts, 4 Features, 13 Structural Elements, and 13 ARIA. A 'View details >' button is located below these statistics. The main content area is titled 'Sign in with a CERN account' and contains a 'Username' field with an ARIA error message: '*aria-label="Enter your CERN Username*"'. Below the field is a 'Password' field with an ARIA error message: '*aria-label="Enter your password*"'. There is a 'Forgot Password?' link and a 'Sign In' button. Below the login fields, there are options for 'Two-factor authentication' and 'Kerberos'. At the bottom, there is a note: 'By logging in, you agree to comply with the CERN Computing Rules, in particular OCS. CERN implements the measures necessary to ensure compliance.' A 'Code' icon is visible in the bottom right corner.

Conclusion



4 issues are already in production.



Over 56/66 issues have already been committed to development infrastructure and will be included in production in the coming months.



Some issues may not be visible for users without impairments, but hold significant impact for those who do, so addressing them is essential to ensuring an inclusive and accommodating experience for all users.



Thank you

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15/08/2023