Tableau and Accessibility

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Today’s Goals

• Discuss the challenges of creating Tableau dashboards that are web accessible

• Explore web accessible functions and design approaches

• Provide resources for further learning
Tableau and Accessibility

Tableau is designed to help people see and understand data.

Challenge: People perceive and interact with the world in a variety of ways.
Tableau and Accessibility
No Color Vision

Chart of Important Things

- Thing 1
- Thing 2
- Thing 3
- Thing 4

Year

Contrast Sensitivity Loss

Chart of Important Things

Year

Thing 1

Thing 2

Thing 3

Thing 4
Low Vision
No Vision
Tableau and Accessibility

Chart of Important Things

- Thing 1
- Thing 2
- Thing 3
- Thing 4

Year


2010 2018
Web Content Accessibility Guidelines (WCAG)

Four principles for web accessibility:

• Perceivable
• Operable
• Understandable
• Robust

World Wide Web Consortium (W3C)
Web Accessibility Initiative (WAI)
https://www.w3.org/WAI/
Perceivable

• Create textual equivalents for all non-text content.

• Make sure color is not the only way to identify information.

• Use text and images that have sufficient contrast against the background.
Operable

- The dashboard should be operable with the keyboard.
- Visualizations, filters, and legends should have titles that help users know what the item is and how to use it.
- Focus order preserves meaning and operability.
Understandable

- Make text readable.
- Make the dashboard operate in predictable ways.
- Provide instructions on interacting with the dashboard.
- Use descriptive text to explain the information displayed in the dashboard.
Robust

• Dashboard content can be interpreted by a variety of user agents, including assistive technologies.
What does this look like in practice?

Demo time

https://tableau.cornell.edu/t/IRP/views/AccessibilityDemo/BadExample?iframeSizedToWindow=true&:embed=y&:showAppBanner=false&:display_count=no&:showVizHome=no
General Observations

- Approaches that improve accessibility are also generally good practices for creating effective dashboards.
- Keep it simple.
- Make liberal use of descriptive text.
- Use color thoughtfully.
Tips

• Think about accessibility from the start

• Design should emphasize the most important data points or elements

• Use descriptive text in titles and captions

• Explain how the dashboard and its elements work
More Tips

• Test with contrast analyzer tools and screen readers

• Color alone is not sufficient

• Allow users to download crosstabs

• Use consistent names

• Set the focus order
Resources: Screen Reader

NVDA VERSION 2018.4

The NVDA screen reader can be downloaded free of charge by anyone. We do this because we believe everyone, especially the world’s poorest blind people deserve access to computers and a way out of poverty. If you have the means, no matter how big or small, please consider making a donation before downloading NVDA. We rely on donations and grants to continue improving NVDA and to ensure it remains compatible with the world’s rapidly changing technology.

https://www.nvaccess.org/download/
Resources: Keyboard Navigation

Keyboard access for embedded views

Version: 2018.3   Applies to: Tableau Desktop

Embedded views that are WCAG-conformant use commonly supported WAI-ARIA standards for keyboard navigation.

In this article

Keystrokes for navigating embedded Tableau views
Example: Navigate an embedded view

Keystrokes for navigating embedded Tableau views

<table>
<thead>
<tr>
<th>Component</th>
<th>Keystrokes</th>
</tr>
</thead>
</table>

Resources: Color Contrast

Color Contrast Checker

Contrast Ratio: 8.49:1

Normal Text

 WCAG AA: Pass
 WCAG AAA: Pass

The five boxing wizards jump quickly.

Large Text

 WCAG AA: Pass
 WCAG AAA: Pass

The five boxing wizards jump quickly.

Graphical Objects and User Interface Components

 WCAG AA: Pass

Text Input
Resources: Color Contrast

Colour Contrast Analyser
The Colour Contrast Analyser (CCA) helps you determine the legibility of text and the contrast of visual elements, such as graphical controls and visual indicators.

Features
- WCAG 2.1 compliance indicators
- Several ways to set colours: raw text entry (accepts any valid CSS colour format), RGB sliders, colour picker (Windows and macOS only)
- Support for alpha transparency on foreground colours
- Colour blindness simulator

Support and development
For questions concerning the Colour Contrast Analyser (CCA), or to report bugs, suggest improvements, and contribute to the code, see the Colour Contrast Analyser (CCA) repository.

https://developer.paciellogroup.com/resources/contrastanalyser/
Resources: Tableau DataTables Extension

Tableau DataTables Extension

The Tableau DataTables Extension was built for several purposes:

- To aide in my understanding of this wonderful new Tableau functionality.
- To leverage the widely used DataTables.net libraries in Tableau dashboards.
- To provide an open source example for others to look at, learn from, and improve upon.

Install Guide

- Install Node.js and NPM
- Install Yarn
- Install Git

https://github.com/tableaumagic/tableau-datatables-extension
Resources: Natural Language Generation Tools

Wordsmith for Tableau

Generate written analytics, using natural language generation, right beside your Tableau visualizations. It's like having your own data analyst navigating you through your dashboards.

https://automatedinsights.com/partners/tableau/
Resources: Natural Language Generation Tools

Tableau Extension

Your dashboards explained in words - instantly

Narratives for Tableau instantly delivers written insights alongside Tableau charts and graphs. The stories adjust as analysts explore the data, empowering them to identify and communicate key insights faster.

See it in action

https://narrativescience.com/products/quill/extensions/tableau/
There are still challenges

• It’s not possible to have a color palette in which any color overlaying any other color would have sufficient contrast (4.5:1).

• Map views in Tableau are not currently supported for WCAG conformance.

• Single Value (slider) and Multiple Values (custom list) filters are not accessible.