

High-Level Accessibility Evaluation (WCAG 2.1)

HeinOnline

May 25, 2023

Prepared for:

BTAA-Library Accessibility Alliance

Prepared by:

Emily Mason, UX Researcher
User-Experience Lab
CCI Research & Innovation Center (RIC)
University of Tennessee
uxl@utk.edu

Primary Point of Contact:

Amy Forrester, RIC Assistant Director
aforres4@utk.edu

TABLE OF CONTENTS

SUMMARY	3
Top Findings	3
Best Practices	3
ACCESSIBILITY FINDINGS	4
1. Initial Interface	4
2. Search Results	8
3. Individual Results	12
4. Advanced Search	16

SUMMARY

This report reflects the findings of a high-level assessment of HeinOnline for its conformance with the W3C Web Content Accessibility Guidelines version 2.1 (WCAG 2.1).

There are some WCAG 2.1 compliance issues with HeinOnline particularly around screen reader compatibility and keyboard navigation. These can be serious issues that may significantly affect the ability of users with physical and visual impairments to navigate the site successfully. Below are the most critical issues to address to improve system compliance.

Top Findings

1. **Compatibility:** The most critical issue with the site currently is compatibility with ARIA, labels, and unique ID's. All these issues can cause significant issues with screen reader support, keyboard navigation, and the overall navigability of the site if not addressed. When authoring for ARIA be sure to reference the [WAI-ARIA Best Practices](#) from W3.
2. **Keyboard Navigation:** Another major issue to address is keyboard navigation. All the pages reviewed had issues with keyboard focus not being clearly visible to the user. This makes it very difficult to navigate the site if a user needs keyboard assistance, as well as impacting screen reader functionality, particularly if an invisible or disabled element receives focus.
3. **Contrast/Alt Text:** There are some minor issues with color contrast and image alt text that is present across all the pages and should be addressed once the above issues are corrected.

Best Practices

Simple corrections can make a sizable difference.

- ◆ Page should have an h1
- ◆ Headings should not be empty
- ◆ Table header should not be empty
- ◆ All page content should be contained by landmarks
- ◆ Document should have one main landmark
- ◆ Landmarks should be unique
- ◆ "Aside" should not be contained in another landmark

ACCESSIBILITY FINDINGS

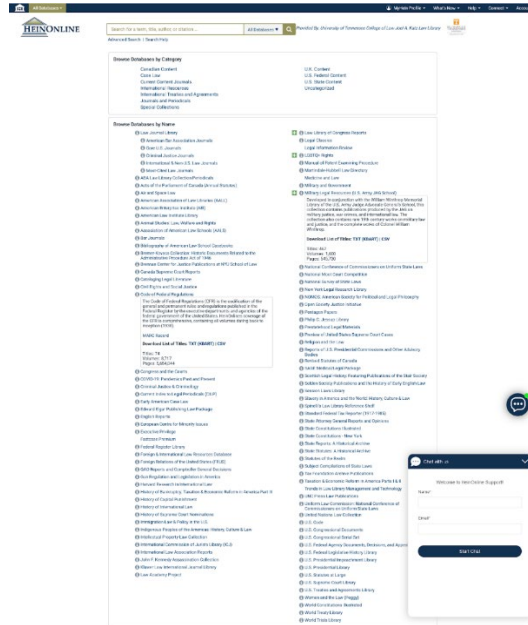
This report was conducted against HeinOnline and covers a selection of pages and features that were to be tested as a representative sample of the database's conformance to the WCAG 2.1 AA standards.

The resource was reviewed using a combination of manual and automatic review tools and assistive technologies, including the WAVE Accessibility Assessment tool, Axe Accessibility Assessment tool, WCAG Color Contrast Checker, and NVDA screen reader. All problems identified by automatic tools were double checked manually. This evaluation was performed using Firefox on Windows 10.

Below are the errors revealed during the accessibility evaluation of HeinOnline. Each result shows a summary of accessibility issues and the reason it was flagged. Screenshots are included.

1. Initial Interface

Test Case: Test initial interface/landing page to ensure menus, sub-menus, search box, images, icons, etc. are accessible. URL: <https://heinonline-org.utk.idm.oclc.org/HOL/Welcome>



SC 1.1.1: Images must have alternate text.

Location(s):

- ``
- ``

Reason flagged:

- Element does not have an alt attribute
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute
- Element's default semantics were not overridden with role="none" or role="presentation"

SC 1.3.1: and must only directly contain , <script>, or <template> elements.

Location(s):

- <h2> </h2>

Reason flagged:

- List element has direct children that are not allowed: <h2>

SC 1.4.3: Elements must have sufficient color contrast.

Location(s):

- All Databases

Reason flagged:

- Element has insufficient color contrast of 3.25 (foreground color: #ffffff, background color: #949159, font size: 9.8pt (13px), font weight: normal). Expected contrast ratio of 4.5:1

SC 2.1.1: The page should be fully navigable using the keyboard.

Location(s): *There are several instances of this issue on this page.*

Reason flagged:

- There is functionality/content on this page that cannot be accessed with the keyboard. Content within the collapse elements on this page is not keyboard accessible.

SC 2.4.4: Links must have discernible text.

Location(s):

-
-
-

- ``

Reason flagged:

- Element does not have text that is visible to screen readers
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute

SC 2.4.7: Keyboard focus must be visible.

Location(s): *There are several instances of this issue on this page.*

Reason flagged:

- Focus is inconsistent across this page and isn't always visible or easily detectable by the user. Keyboard focus should be clearly visible and non-interactive and non-visible page elements shouldn't receive focus.

SC 4.1.1: IDs of active elements must have sufficient color contrast.

Location(s): *This issue has multiple instances on this page.*

Reason flagged:

- Document has active elements with the same id attribute: `c_#`

SC 4.1.2: ID attribute value must be unique.

Location(s):

- `<div id="bool_helpfull_text" class="goldbox" style="display:none;"> </div>`
- ` * `
- `End Chat`
- `<div class="ProProfs_greet_content" id="proporfs_greeting_text_container" style="text-align: left !important; font-family: inherit !important;color:#505050 !important;">undefined</div>`

Reason flagged:

- Document has multiple static elements with the same id attribute: `bool_helpfull_text`
- Document has multiple static elements with the same id attribute: `required_pp_department_label`
- Document has multiple static elements with the same id attribute: `close_pp_button`
- Document has multiple static elements with the same id attribute: `proporfs_greeting_text_container`

SC 4.1.2: Elements must only use allowed ARIA attributes.

Location(s):

- ``
- ``
- ``
- ``
- ``
- ``
- ``
- ``
- ``
- ``

Reason flagged:

- `aria-label` attribute cannot be used on an `<a>` with no valid `role` attribute.

SC 4.1.2: Buttons must have discernible text.

Location(s):

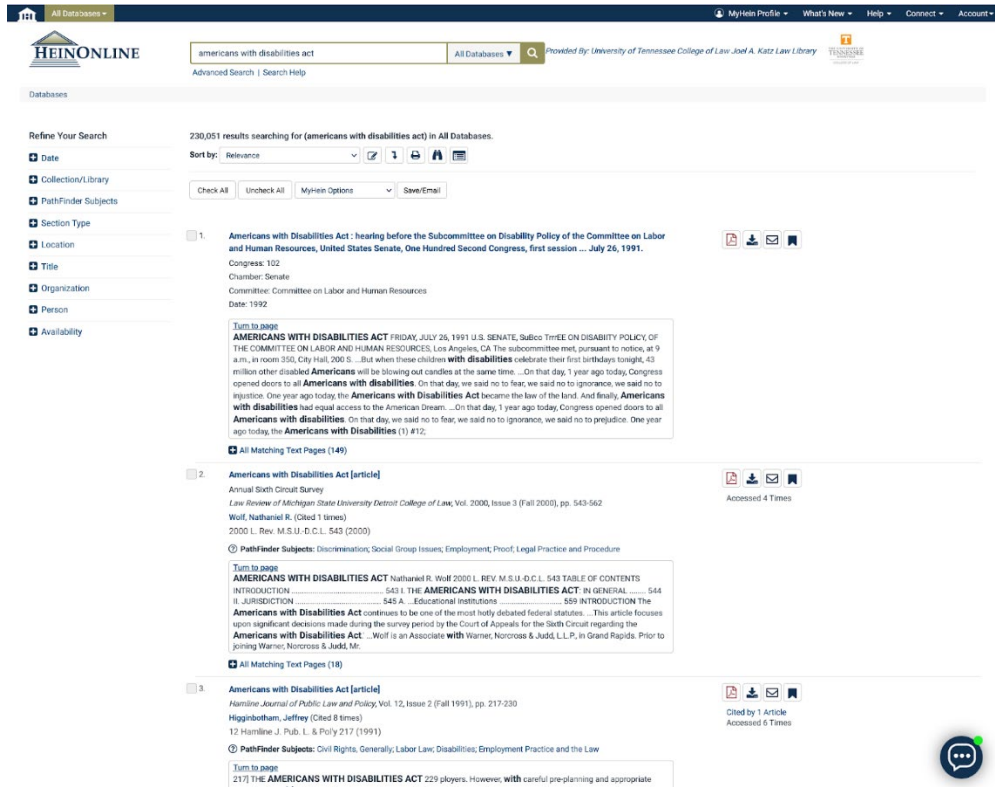
- `<button class="btn btn-default search" type="submit" id="sendit_full_text" name="sendit"><i class="fa fa-search fa-20-w"></i></button>`

Reason flagged:

- Element does not have inner text that is visible to screen readers
- `aria-label` attribute does not exist or is empty
- `aria-labelledby` attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no `title` attribute
- Element's default semantics were not overridden with `role="none"` or `role="presentation"`

2. Search Results

Test Case: From initial interface, enter a simple search in the searchbox for: Americans with Disabilities Act and select "Search". Test search results page, including: "sort by" dropdowns, icons next to sort by options, etc. Test "refine your search" options on left-hand side of search results page. Limit to 2018-2023 (under date) and ADA (under Organization).



SC 1.1.1: Images must have alternate text.

Location(s):

- ``
- ``

Reason flagged:

- Element does not have an alt attribute
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute
- Element's default semantics were not overridden with `role="none"` or `role="presentation"`

SC 1.3.1: <dt> and <dd> elements must be contained by a <dl>.

Location(s):

- #pgcontainer > li

Reason flagged:

- List item does not have a , parent element

SC 1.3.1: elements must be contained by a or .

Location(s): *This issue has multiple instances on this page.*

Reason flagged:

- Description list item does not have a <dl> parent element

SC 1.4.3: Elements must have sufficient color contrast.

Location(s):

- All Databases

Reason flagged:

- Element has insufficient color contrast of 3.25 (foreground color: #ffffff, background color: #949159, font size: 9.8pt (13px), font weight: normal). Expected contrast ratio of 4.5:1

SC 2.4.4: Links must have discernible text.

Location(s): *This issue has multiple instances on this page.*

Reason flagged:

- Element does not have text that is visible to screen readers
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute

SC 2.4.7: Keyboard focus must be visible.

Location(s): *There are several instances of this issue on this page.*

Reason flagged:

- Focus is inconsistent across this page and isn't always visible or easily detectable by the user. Keyboard focus should be clearly visible and non-interactive and non-visible page elements shouldn't receive focus.

SC 4.1.1: IDs used in ARIA and labels must be unique.

Location(s):

- - - - - - - - - - -

- `<input type="checkbox" class="checkbox_sel" value="Page?public=true&handle=hein.journals/fbileb60&div=64&start_page=25&collection=usjournals@@@The Americans with Disabilities Act [article]" id="selections10" name="selections">`

Reason flagged:

- Document has multiple elements referenced with ARIA with the same id attribute: selections(#)

SC 4.1.2: ID attribute value must be unique.

Location(s): *There are multiple instances of this issue on this page.*

Reason flagged:

- Document has multiple static elements with the same id attribute.

SC 4.1.2: Buttons must have discernible text.

Location(s):

- `<button class="btn btn-default search" type="submit" id="sendit_full_text" name="sendit"><i class="fa fa-search fa-20-w"></i></button>`

Reason flagged:

- Element does not have inner text that is visible to screen readers
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute
- Element's default semantics were not overridden with role="none" or role="presentation"

SC 4.1.2: Select elements must have an accessible name.

Location(s):

- `<select name="user_action" class="form-control" id="action_select"><option value="save_alert">MyHein Options</option><option value="save_email">Email Selected Results</option><option value="save">MyHein Bookmarks</option><option value="save_query">MyHein Search Queries</option></select>`

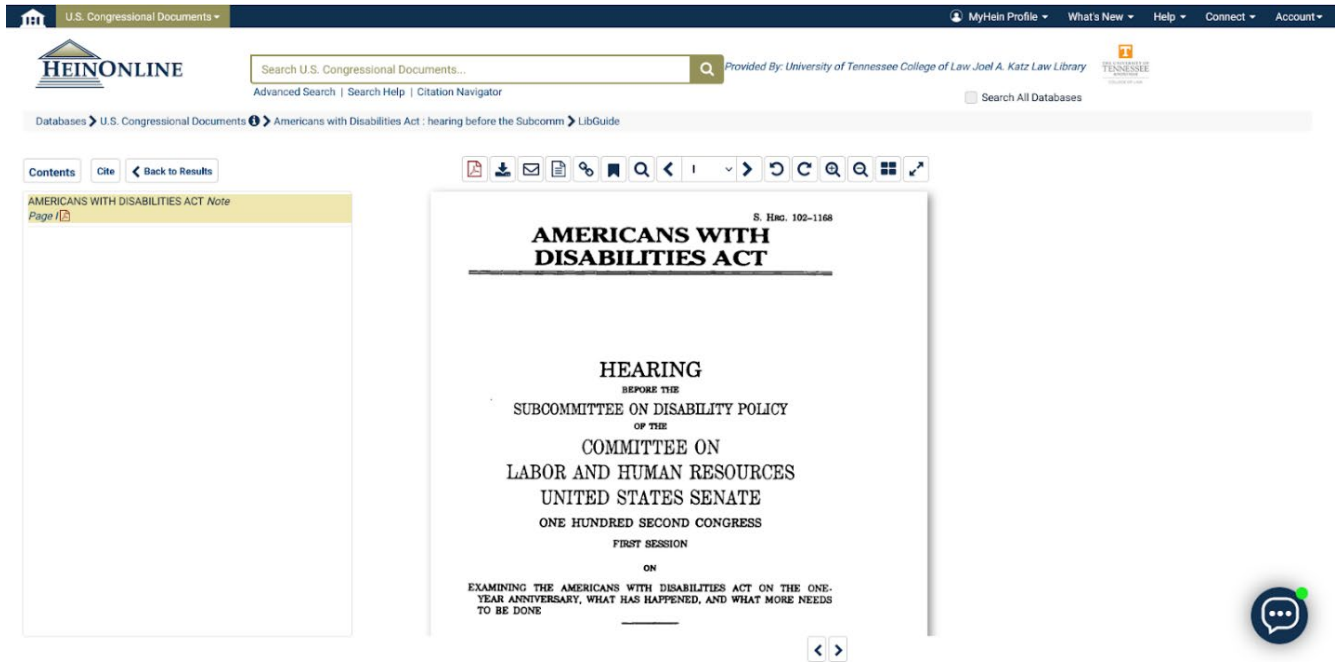
Reason flagged:

- Form element does not have an implicit (wrapped) `<label>`
- Form element does not have an explicit `<label>`
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute

- Element's default semantics were not overridden with role="none" or role="presentation"

3. Individual Results

Test Case: Select an individual search result by clicking on one record from the search results page. Please test: Result landing page/reader view, Buttons/options at top of reader & contents panel on left, and PDF download.



SC 1.1.1: Images must have alternate text.

Location(s):

- ``
- ``

Reason flagged:

- Element does not have an alt attribute
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute
- Element's default semantics were not overridden with role="none" or role="presentation"

SC 1.3.1: and must only directly contain , <script>, or <template> elements.

Location(s):

- <div id="contents-show" class="fa-14">

Reason flagged:

- List element has direct children that are not allowed: <h2>

SC 1.4.3: Elements must have sufficient color contrast.

Location(s):

- All Databases

Reason flagged:

- Element has insufficient color contrast of 3.25 (foreground color: #ffffff, background color: #949159, font size: 9.8pt (13px), font weight: normal). Expected contrast ratio of 4.5:1

SC 2.4.4: Links must have discernible text.

Location(s):

-
- .page_left > a[href="#"]
- .page_right > a[href="#"]
-
-
-

Reason flagged:

- Element does not have text that is visible to screen readers
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute

SC 2.4.7: Keyboard focus must be visible.

Location(s): *There are several instances of this issue on this page.*

Reason flagged:

- Focus is inconsistent across this page and isn't always visible or easily detectable by the user. Keyboard focus should be clearly visible and non-interactive and non-visible page elements shouldn't receive focus.

SC 4.1.2: ID attribute value must be unique.

Location(s):

- `<div id="feedbacktopics" class="beautiful_form" style="overflow-y: scroll;position:fixed; margin: 0 auto;z-index:2500;display:none;background-color:#fff; height:750px;width:750px;top:10%;left:30%;">`
- `<input type="hidden" name="collection" id="collection" value="congreg">`
- `<div id="hn_cit6" tabindex="0" class="hn_citr" onclick="selectAndCopy(this)"> "AMERICANS WITH DISABILITIES ACT" [1992] I.</div>`
- ``
- `<input type="hidden" id="citationsection" value="handle=hein.cbhear/cbhearings5274&id=1&div=2&collection=congreg">`
- `<div id="hn_pincit6" tabindex="0" class="hn_citr" onclick="selectAndCopy(this)"> "AMERICANS WITH DISABILITIES ACT" (1992) . I.</div>`
- ` * `
- `End Chat`
- `<div class="ProProfs_greet_content" id="proprofs_greeting_text_container" style="text-align: left !important; font-family: inherit !important;color:#505050 !important;">undefined</div>`

Reason flagged:

- Document has multiple static elements with the same id attribute.

SC 4.1.2: Buttons must have discernible text.

Location(s):

- `<button class="btn btn-default search" type="submit" id="sendit_full_text" name="sendit"><i class="fa fa-search fa-20-w"></i></button>`

Reason flagged:

- Element does not have inner text that is visible to screen readers
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute
- Element's default semantics were not overridden with role="none" or role="presentation"

SC 4.1.2: Select elements must have an accessible name.

Location(s):

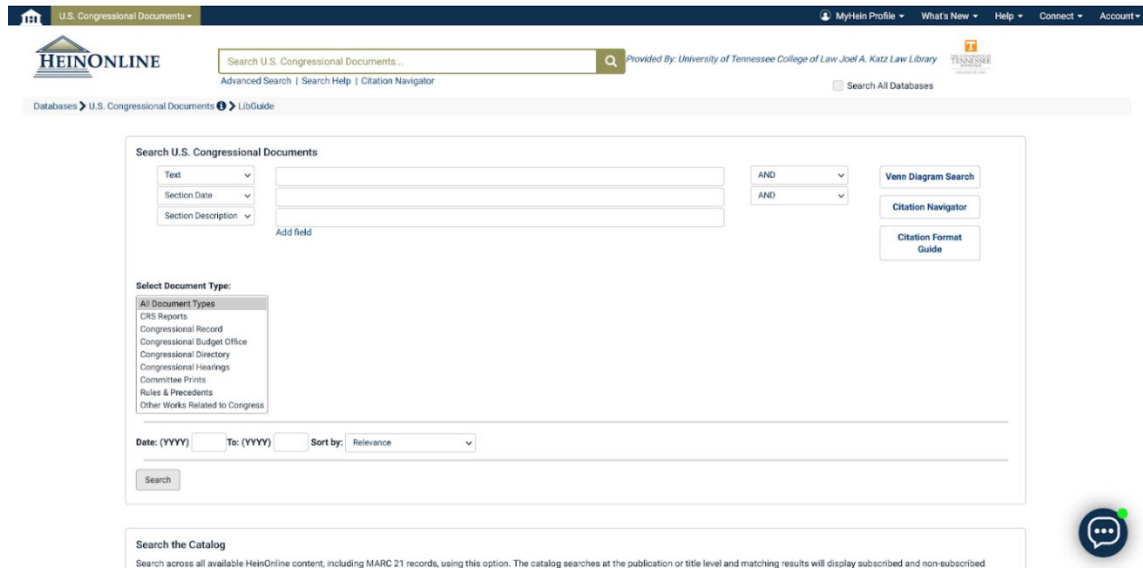
- `<select
onchange="swapFadeC('words','hein.cbhear/cbhearings5274',0,'congreg','jump',this.options[this.selectedIndex].value,'document.getElementById('page_size').value);"
id="pageSelect" name="pageSelect" class="form-control btn-select">`

Reason flagged:

- Form element does not have an implicit (wrapped) `<label>`
- Form element does not have an explicit `<label>`
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute
- Element's default semantics were not overridden with role="none" or role="presentation"

4. Advanced Search

Test Case: Test Advanced Search page and dropdown.



SC 1.1.1: Images must have alternate text.

Location(s):

- ``
- ``
- ``

Reason flagged:

- Element does not have an alt attribute
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute
- Element's default semantics were not overridden with `role="none"` or `role="presentation"`

SC 1.4.3: Elements must have sufficient color contrast.

Location(s):

- `All Databases`

Reason flagged:

- Element has insufficient color contrast of 3.25 (foreground color: #ffffff, background color: #949159, font size: 9.8pt (13px), font weight: normal). Expected contrast ratio of 4.5:1

SC 2.4.4: Links must have discernible text.

Location(s):

- ``
- ``
- ``
- ``
- ``

Reason flagged:

- Element does not have text that is visible to screen readers
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute

SC 2.4.7: Keyboard focus must be visible.

Location(s): *There are several instances of this issue on this page.*

Reason flagged:

- Focus is inconsistent across this page and isn't always visible or easily detectable by the user. Keyboard focus should be clearly visible and non-interactive and non-visible page elements shouldn't receive focus.

SC 4.1.2: Buttons must have discernible text.

Location(s):

- `<button class="btn btn-default search" type="submit" id="sendit_full_text" name="sendit"><i class="fa fa-search fa-20-w"></i></button>`

Reason flagged:

- Element does not have inner text that is visible to screen readers
- aria-label attribute does not exist or is empty

- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute
- Element's default semantics were not overridden with role="none" or role="presentation"

SC 4.1.2: ID attribute value must be unique.

Location(s):

- `<div class="idle_display search_wait" id="lookup_idle"><div class="loading_gif"></div></div>`
- `<input type="hidden" name="collection" id="collection" value="congreg">`
- ` * `
- `End Chat`
- `<div class="ProProfs_greet_content" id="proporfs_greeting_text_container" style="text-align: left !important; font-family: inherit !important;color:#505050 !important;">undefined</div>`

Reason flagged:

- Document has multiple static elements with the same id attribute.

SC 4.1.2: Form elements must have labels.

Location(s):

- `<input type="text" name="termsa" id="termsa" value="">`
- `<input type="text" name="termsb" id="termsb" value="">`
- `<input type="text" name="termsc" id="termsc" value="" <span="" class="block_c">`
- `<input name="termsa" id="termsacatalog" class="input-xlarge" placeholder="" type="text" value="">`
- `<input name="termsb" id="termsbcatalog" class="input-xlarge" placeholder="" type="text" value="">`
- `<input name="termsc" id="termsccatalog" class="input-xlarge" placeholder="" type="text" value="">`

Reason flagged:

- Form element does not have an implicit (wrapped) `<label>`
- Form element does not have an explicit `<label>`
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute

- Element has no placeholder attribute
- Element's default semantics were not overridden with role="none" or role="presentation"

SC 4.1.2: Select elements must have an accessible name.

Location(s):

- #typea
- .col-md-2.col-lg-2 > .form-control[name="operator"]
- #typeb
- .col-md-2.col-lg-2 > .form-control[name="operatorb"]
- #typec
- #authority_type
- #typeacatalog
- #operatorcatalog
- #typebcatalog
- #operatorbcatalog
- #typeccatalog

Reason flagged:

- Form element does not have an implicit (wrapped) <label>
- Form element does not have an explicit <label>
- aria-label attribute does not exist or is empty
- aria-labelledby attribute does not exist, references elements that do not exist or references elements that are empty
- Element has no title attribute
- Element's default semantics were not overridden with role="none" or role="presentation"

Disclaimer: This high-level evaluation was conducted for the Library Accessibility Alliance and represents a good faith effort conducted within a limited time frame. It should not be assumed to be complete or free from error. No warranties or guarantees are implied. UT is not responsible for direct, indirect, or incidental damages based on this work; its use or interpretation by any individual, group, or organization; or on conditions beyond our control.