

Accessibility Testing Results Summary

Accessibility and Usability Lab - Office of Information Technology - University of Colorado Boulder

Grouper

Testing conducted May 3-May 18, 2016. Report completed May 23, 2016.

If you would like help interpreting the report results or if you would like to schedule a demo of the issues with one of our testers, please contact Kosta Tovstiadi (kosta@colorado.edu) or Paula Vaughan (piv@colorado.edu).

Testing platforms

Grouper was tested on desktop platforms only:

- On Windows, 4 screen readers: Window-Eyes 9.2, NVDA 2016-1, and JAWS 17 on Windows 8 with Mozilla Firefox; and one screen magnifier with Google Chrome on Windows 8.
- On Mac, one screen reader, VoiceOver, with OS X 10.11 and Safari.

Testing Scope and Standards

Testing involved reading through each display within Grouper as well as selecting a group and

- adding a member (selecting from a list, setting privileges)
- removing a member
- checking the content within the Privileges “tab”
- checking the More “tab”

This review pointed out that:

- Graphics (for example, check marks) are used but are not read in the privileges table
- New content is not announced nor does new content receive focus when displayed
- Success and error messages are not announced nor do they receive focus
- Messages are displayed via mouse hovering but are not available to screen reader/keyboard use.
- Various components (tables, check boxes) do not have meaningful labels

Accessibility issues are typically categorized into three groups:

1. Severe issues: problems that violate accessibility standards and make core parts of the application inaccessible.
2. Significant issues: problems that violate accessibility standards and make the application difficult although not impossible to use.
3. Usability issues: problems that don't violate standards but that introduce user interface problems that make the application less intuitive and easy to use.

The use of unread check marks in the Privileges table is a Severe issue. Most of the remaining issues are considered significant issues with a handful of items presenting usability issues.

The standards compliance document chosen for the tests is Web Content Accessibility Guidelines (WCAG) 2.0, level AA. <http://www.w3.org/TR/WCAG20/>, as prescribed by [CU-Boulder Campus Standards for the Accessibility of Information and Communication Technology Policy](#). References to the relevant portions of WCAG 2.0 are provided with the description of each issue in the severe and significant groupings.

Severe Issue

The Entity Privileges table displayed from the Privileges “tab” uses checkmarks (✓) to indicate which privileges have been assigned to each member of the group. Screen readers are not able to read these checkmarks. Instead, the screen reader simply reads the member’s name then each column header as it navigates across the row, with no indication of a checkmark or non-checkmark.

The Entity Privileges table also changes the checkmark to an x if a mouse hovers over a checkmark or to a + if a mouse hovers over a privilege that has not yet been checked, briefly displaying a prompting message (“remove this privilege” or “assign this privilege”). Screen readers do not have hovering capability so the screen reader user does not receive the prompt for the x/+ or for the prompt message. Consequently, the table contains no meaningful member privilege information for the screen reader user - and the screen reader user has no viable means of determining which privileges have been assigned to each entity member.

As a result of these issues, the screen reader user has no workable method of reviewing or assigning privileges to an existing member.

pregashtestgroup1 includes + Add members
 More actions ▾

Group containing manual list of includes for group pregashtestgroup1 which will be added to the system of record list (unless the subject is also in the excludes group)

More ▾

Members Privileges More ▾

The following table lists all entities with privileges in this group.

Filter for: Apply filter Reset Advanced

Update: Update selected

<input type="checkbox"/> Entity name ▾	Admin	Read	Update	OptIn	OptOut	Attribute read	Attribute update	View	
<input type="checkbox"/> Accessibility Grouper Admins	✓	✓	✓	✓	✓	✓	✓	✓	Actions ▾
<input type="checkbox"/> Amelia Anne Dickerson	✓	✓	✓	✓	✓	✓	✓	✓	Actions ▾
<input type="checkbox"/> Bill Casson	✓	✓	✓	✓	✓	✓	✓	✓	Actions ▾
<input type="checkbox"/> Derek Scott Riemer	✓	✓	✓	✓	✓	✓	✓	✓	Actions ▾

<input type="checkbox"/> Konstantin Tovstiadi	✓	✓	✓	✓	✓	✓	✓	✓	Actions ▾
<input type="checkbox"/> Paula J Vaughan	✓	✓	✓	✓	✕	✓	✓	✓	Actions ▾
<input type="checkbox"/> Pramila Patel	✓	✓	✓	✓	✕	✓	✓	✓	Actions ▾

Remove this privilege

Corresponding WCAG 2.0 requirements:

Guideline 1.1 Text Alternatives: Provide text alternatives for any non-text content so that it can be changed into other forms people need, such as large print, braille, speech, symbols or simpler language.

1.1.1 Non-text Content: All non-text content that is presented to the user has a text alternative that serves the equivalent purpose... (Level A)

Guideline 1.3 Adaptable: Create content that can be presented in different ways (for example simpler layout) without losing information or structure.

1.3.1 Info and Relationships: Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. (Level A)

Guideline 2.1 Keyboard Accessible: Make all functionality available from a keyboard.

2.1.1 Keyboard: All functionality of the content is operable through a keyboard interface without requiring specific timings 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. (Level A)

Guideline 3.3 Input Assistance: Help users avoid and correct mistakes.

3.3.2 Labels or Instructions: Labels or instructions are provided when content requires user input. (Level A)

Significant Issues

New/Expanded Content Not Announced

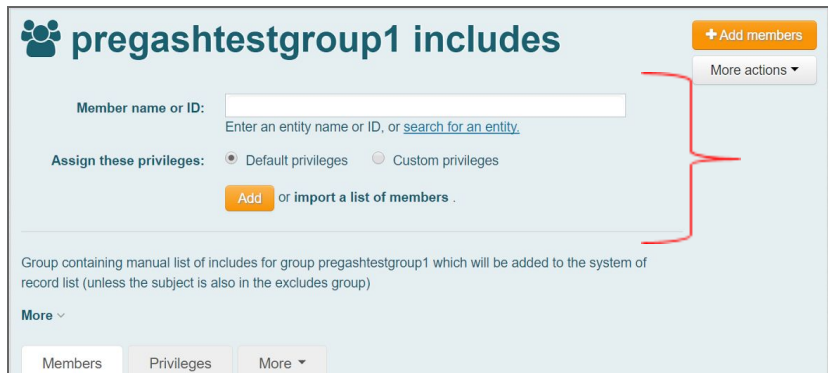
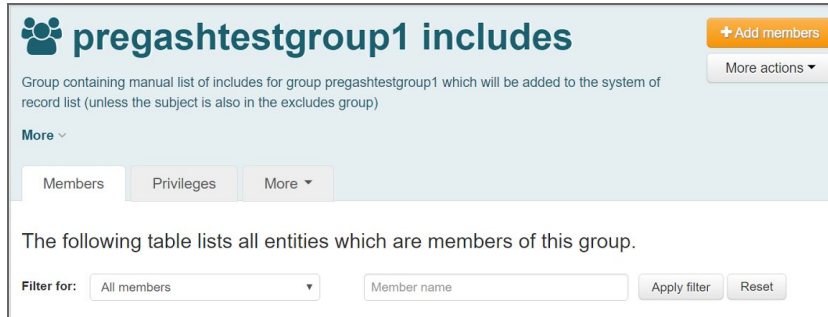
When a user performs an action that results in a new display or expansion of content, that new information should be made known to screen readers. This does not happen within the Grouper application. Consequently, the screen reader user does not know that they have been moved to a new page or that new content has appeared on the current page. In most cases, the user is left wondering what has occurred. Examples:

- Selecting a group within the “Groups I Manage” list from the Grouper home page brings up a display for the selected group. However, the new display is not announced and the screen reader focus lands within the Entity table portion of the new display, below the page heading and page description which would have helped the screen reader user better understand where they landed. (Note: Different screen readers’ focus landed in slightly different areas of the page. Window-Eyes focus landed on the first entity name, NVDA focus landed on Actions for the first entity row, VoiceOver went to the member search box.)
- Within a specific group’s page (listing its membership), selecting “Add Members” changes the content displayed but leaves the focus at “Add Members.” The screen reader user is unaware that anything has changed on the page and that they are now able to search for and add members to the group.

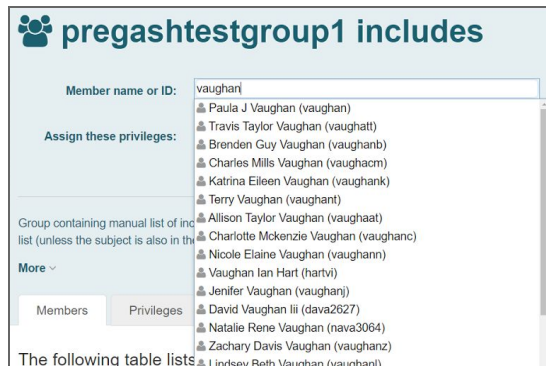
Note: the order in which the screen reader moves through the display does not immediately send the screen reader user to the explanatory text from “Add Members” further compounding the confusion with the Add Members request. Starting from the

Group Name heading, screen readers move on to the text beneath the heading, the “More” link, then “Add members” - followed by “More Actions” and the Members/Privileges/More tabs/links. Consequently, from Add Members, the explanatory content is not within the screen reader flow and the screen reader user has to go all the way through the page then back up to the top heading and back down again to find out what happened with the request to Add Members.

The screenshots below illustrate the display prior to selecting “Add members” and after selecting “Add members” (with new content highlighted).



- When a search for entity name is invoked during the Add Member process, the resulting search list is not announced.



- When “Custom privileges” is chosen during the Add Member/Assign privileges process, the new display of custom privilege choices are not announced. Screenshots below show the display before and after choosing the Custom privileges radio button (with new content highlighted).

pregashtestgroup1 includes

+ Add members

More actions ▾

Member name or ID: Paula J Vaughan (vaughan)
Enter an entity name or ID, or [search for an entity](#).

Assign these privileges: Default privileges Custom privileges

Add or import a list of members .

pregashtestgroup1 includes

+ Add members

More actions ▾

Member name or ID: Paula J Vaughan (vaughan)
Enter an entity name or ID, or [search for an entity](#).

Assign these privileges: Default privileges Custom privileges

MEMBER ADMIN UPDATE READ VIEW OPTIN
 OPTOUT ATTRIBUTE READ ATTRIBUTE UPDATE

Add or import a list of members .

- The drop down list from the entity actions button is not announced when Actions is selected. The screen reader user is left wondering what actions there might be.

Remove selected members

Entity name ▾	Membership	Actions ▾
<input type="checkbox"/> Konstantin Tovstadi	Direct	Actions ▾
<input type="checkbox"/> Paula J Vaughan	Direct	Actions ▾
<input type="checkbox"/> buffalor	Direct	Actions ▾

Show: 50

Showing 1-3 of 3 - First | Prev | Next | Last

- The revised display of entity names is not announced after applying a filter to the entity list.

Members Privileges More ▾

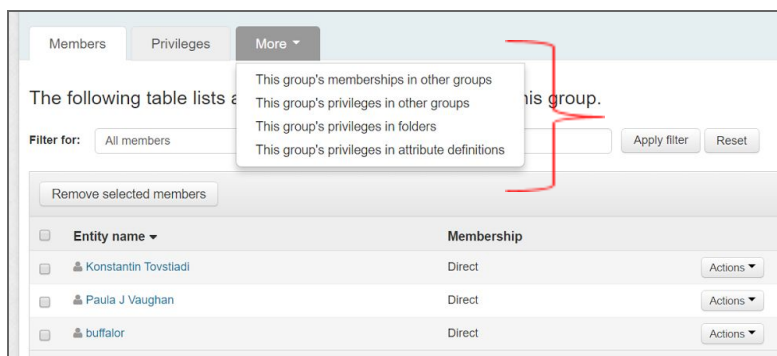
The following table lists all entities which are members of this group.

Filter for: **Has direct membership** Member name

Remove selected members

Entity name ▾	Membership	Actions ▾
<input type="checkbox"/> Konstantin Tovstadi	Direct	Actions ▾
<input type="checkbox"/> Paula J Vaughan	Direct	Actions ▾
<input type="checkbox"/> buffalor	Direct	Actions ▾

- The drop down list from the More tab/link is not announced when More is selected.



Corresponding WCAG 2.0 requirements:

Guideline 3.2 Predictable: Make Web pages appear and operate in predictable ways.

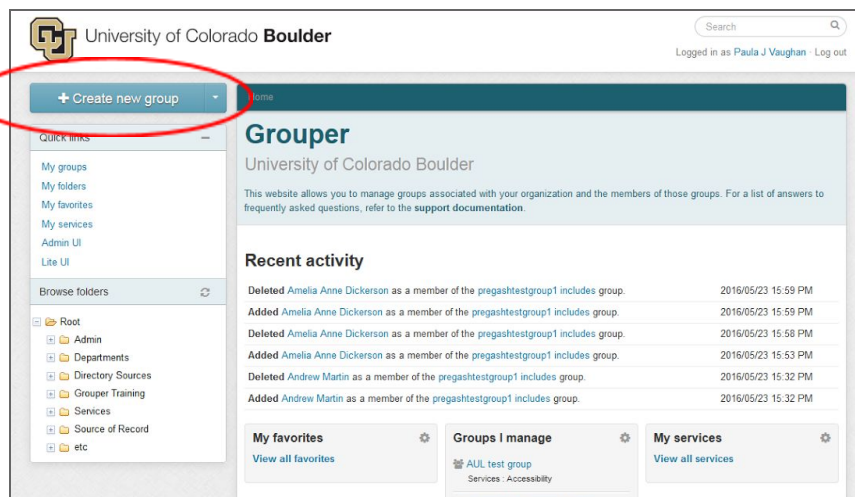
3.2.2 On Input: Changing the setting of any user interface component does not automatically cause a change of context unless the user has been advised of the behavior before using the component. (Level A)

Guideline 4.1 Compatible: Maximize compatibility with current and future user agents, including assistive technologies.

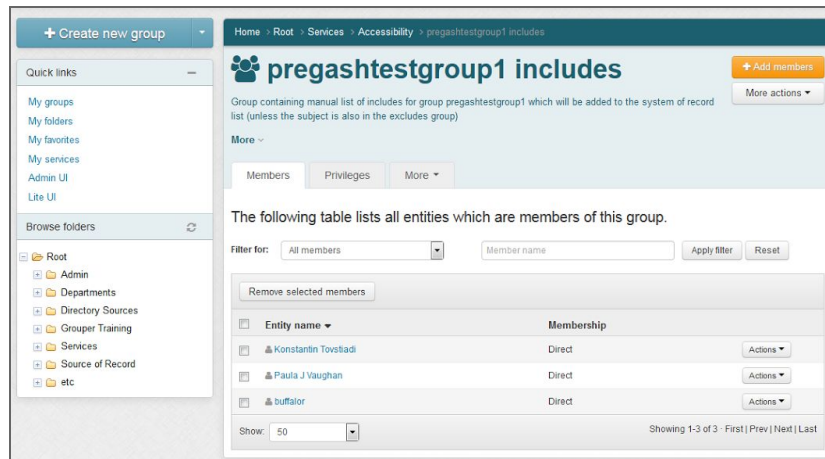
4.1.2 Name, Role, Value: For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. (Level A)

Navigation Issues

- On the Grouper home page, “Create new group” is not read by screen readers until after all of the main content is read, including everything within “My favorites”, “Groups I Manage”, and “My Services.” Given the importance of the function, it should perhaps come earlier in the flow.



- When the group management page is displayed for a specific group, screen reader focus lands within the Entity table portion of the display bypassing the page heading, page description, and table heading. Consequently, the screen reader user does not know what page they have landed on nor what the table they have landed in is for. Upon arriving at the group management page, focus should be put at the group name heading and navigation should take the screen reader through the main content and table name before arriving at the table rows.



Corresponding WCAG 2.0 requirements:

Guideline 2.4 Navigable: Provide ways to help users navigate, find content, and determine where they are.

2.4.3 Focus Order: If a Web page can be navigated sequentially and the navigation sequences affect meaning or operation, focusable components receive focus in an order that preserves meaning and operability. (Level A)

- When “Custom privileges” is chosen during the Add Member/Assign privileges process, the page reloads, sending screen reader focus to the very top of the web page (to the url).
- When the member entity list filter “Reset” button is selected, the page reloads sending screen reader focus to the top of the web page.

Corresponding WCAG 2.0 requirements:

Guideline 2.4 Navigable: Provide ways to help users navigate, find content, and determine where they are.

2.4.3 Focus Order: If a Web page can be navigated sequentially and the navigation sequences affect meaning or operation, focusable components receive focus in an order that preserves meaning and operability. (Level A)

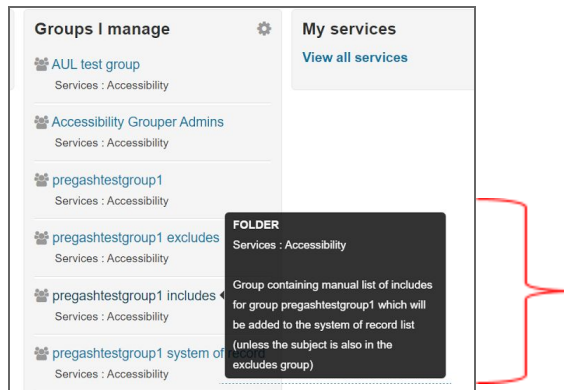
Guideline 3.2 Predictable: Make Web pages appear and operate in predictable ways.

3.2.2 On Input: Changing the setting of any user interface component does not automatically cause a change of context unless the user has been advised of the behavior before using the component. (Level A)

Information displayed via mouse hover - not readable by screen readers

Screen readers are completely dependent upon keyboard action; no “hover” information is available to screen reader users. Example (in addition to the Privileges table mouse-hover issues noted in the Severe Issues section):

- Descriptions of groups within the Groups I Manage list are not available to screen reader users.



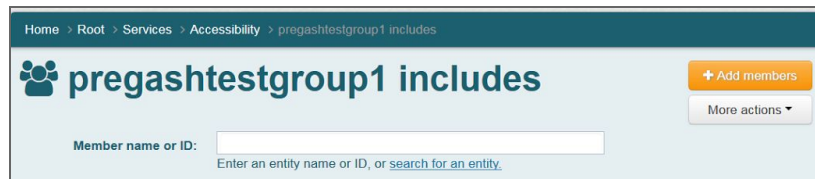
Corresponding WCAG 2.0 requirements:

Guideline 2.1 Keyboard Accessible: Make all functionality available from a keyboard.

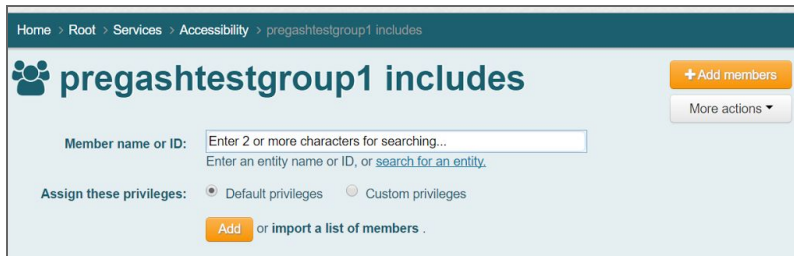
2.1.1 Keyboard: All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user’s movement and not just the endpoints. (Level A)

Data entry issues

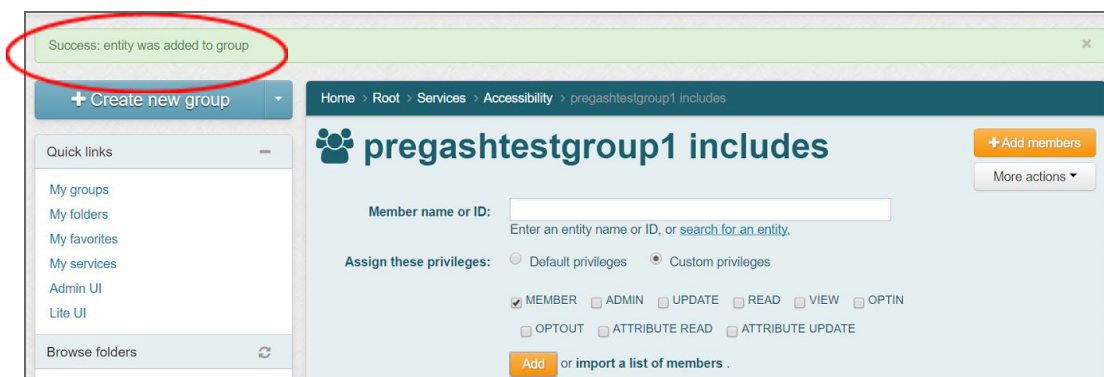
- The “Add Members” Member name or ID entry field is not labeled as an entry field nor is it defined as a form field to the screen reader. The screen reader has to be forced into focus mode in the field in order to enter a name or ID.



- The ‘two or more characters’ error message appears within the add-member-name text entry box, unbeknownst to the screen reader user. Consequently, when the screen reader user starts typing in a name after the error message is displayed, the new characters are appended to the end of the error message.



- Error (and success) messages are displayed above the page heading and all content and, rather than sending focus to (and reading) the success message, focus stays at the action button (for example, at the “Add” button for the Add member process).
 - The screen readers users did not even know to look for the messages without the prompting of a sighted observer. Instead, they had to assume the requested action was completed.
 - Magnifier users did not see the messages because the colored bar appeared above the field of magnification and the text appeared too far to the left of the field of magnification.



Corresponding WCAG 2.0 requirements:

Guideline 2.4 Navigable: Provide ways to help users navigate, find content, and determine where they are.

2.4.3 Focus Order: If a Web page can be navigated sequentially and the navigation sequences affect meaning or operation, focusable components receive focus in an order that preserves meaning and operability. (Level A)

2.4.6 Headings and Labels: Headings and labels describe topic or purpose. (Level AA)

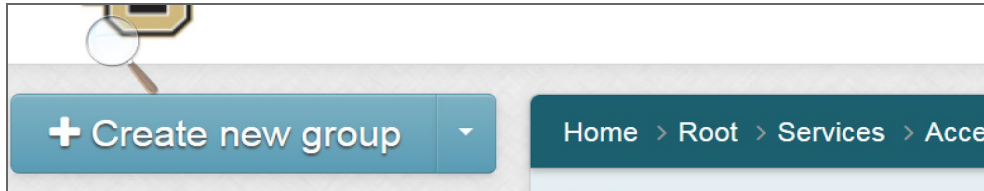
Guideline 3.3 Input Assistance: Help users avoid and correct mistakes.

3.3.1 Error Identification: 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. (Level A)

3.3.2 Labels or Instructions: Labels or instructions are provided when content requires user input. (Level A)

Labeling

- Magnifier testing revealed that the Create New Group button is a faded color. Consequently, the magnifier tester assumed the button was inactive.



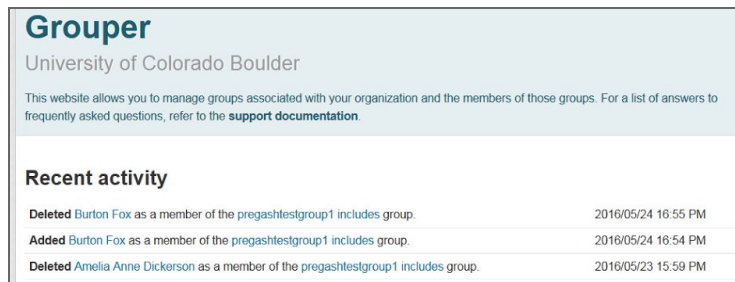
- “Quick Links” is read as a button whereas it is actually an expandable list.



- The graphic after “Browse Folders” is not labeled and is read only as “clickable.”

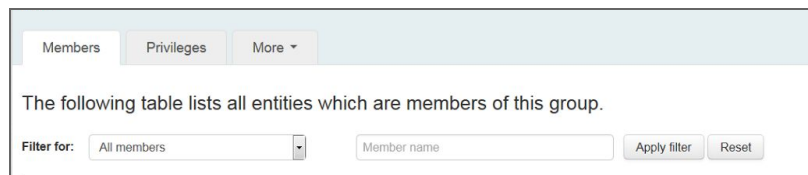



- The Recent Activity listing (defined as a table to the screen readers) on the Grouper home page has no meaningful labels.

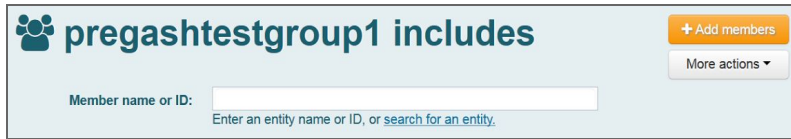


Grouper	
University of Colorado Boulder	
This website allows you to manage groups associated with your organization and the members of those groups. For a list of answers to frequently asked questions, refer to the support documentation .	
Recent activity	
Deleted Burton Fox as a member of the pregashtestgroup1 includes group.	2016/05/24 16:55 PM
Added Burton Fox as a member of the pregashtestgroup1 includes group.	2016/05/24 16:54 PM
Deleted Amelia Anne Dickerson as a member of the pregashtestgroup1 includes group.	2016/05/23 15:59 PM

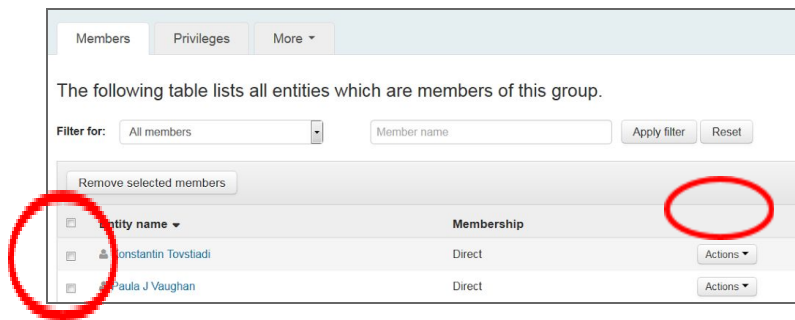
- “Members” “Privileges” and “More” appear visually as tabs but are defined as (and read by the screen readers as) links. Consequently, the screen reader user thinks that if they were to select one of these, they would be sent to a new page. Also, the tabs/links do not indicate to the screen reader which tab/link is active. Because the “More” tab/link actually contains a list, this would be more appropriately defined as dropdown list (specifying collapsed or expanded, depending on its state).



- “Add Member” appears visually as a button but is read as a link. 
- “Search for an Entity” appears visually as a link but is read as a button.



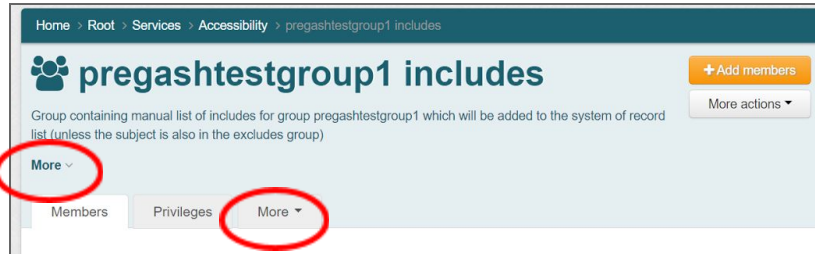
- Group membership entity table:
 - The definition is read as four columns but the fourth column (containing the Actions dropdowns) has no column header to let the screen reader user know what is in that column.
 - The check boxes for each row have no meaningful labels



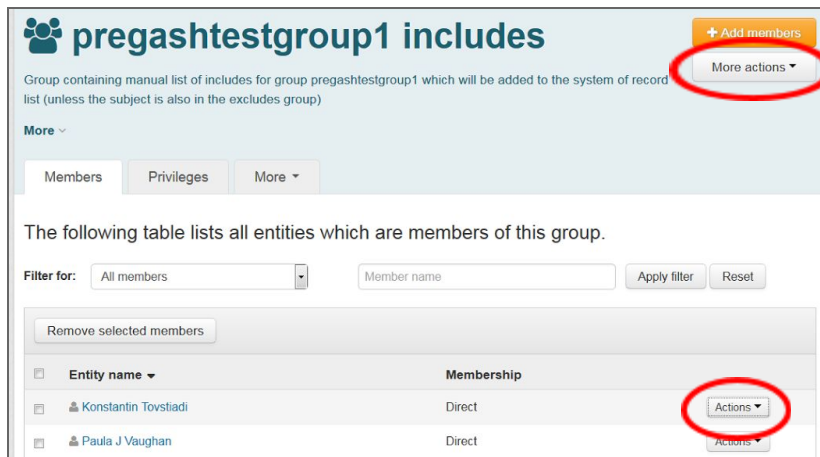
- The bread crumb above the main content is not identified as a bread crumb to the screen reader, losing its value as a navigation tool for the screen reader user.



- There are two links on the Group management page labeled “More” - each with a very different purpose. The first leads to a display of “more” information about the group and the second offers “more” actions associated with the group. Screen reader users searching for links hear “More” without associated context and have no idea what each “More” refers to.



- Two links within screen reader link lists are labeled with “Actions” - with very different purposes. The first pertains to group actions, the second pertains to member entity actions. Screen reader users searching for links hear “Actions” without associated context and have no idea what each “Actions” refers to.



Corresponding WCAG 2.0 requirements:

Guideline 1.3 Adaptable: Create content that can be presented in different ways (for example simpler layout) without losing information or structure.

1.3.1 Info and Relationships: Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. (Level A)

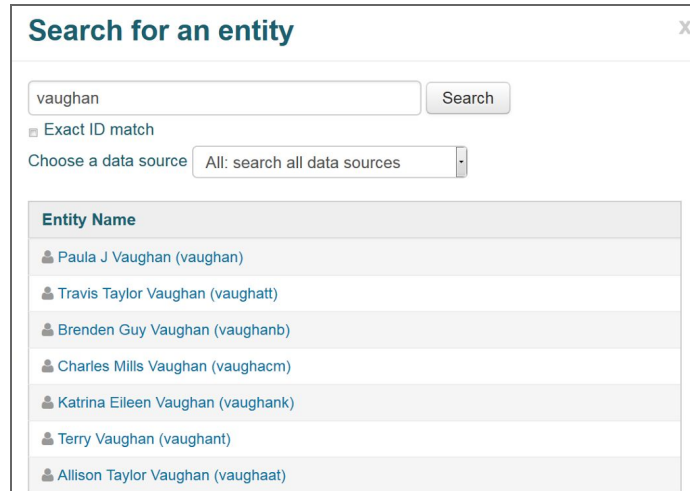
Guideline 2.4 Navigable: Provide ways to help users navigate, find content, and determine where they are.

2.4.4 Link Purpose (In Context): The purpose of each link can be determined from the link text alone or from the link text together with its programmatically determined link context, except where the purpose of the link would be ambiguous to users in general. (Level A)

2.4.6 Headings and Labels: Headings and labels describe topic or purpose. (Level AA)

Usability Issues

- The Add Members entity name search list is not alphabetical. Screen reader users have to read through the entire list name-by-name to find the desired person. If alphabetical, they could search by first letter(s).



The screenshot shows a search modal titled "Search for an entity" with a close button (x) in the top right corner. It features a search input field containing the text "vaughan" and a "Search" button. Below the input field, there is a checkbox labeled "Exact ID match" which is currently unchecked. Underneath, there is a dropdown menu labeled "Choose a data source" with the selected option being "All: search all data sources". The main content area displays a list of search results under the heading "Entity Name". Each result is a row with a person icon and a name followed by a unique identifier in parentheses. The results are: Paula J Vaughan (vaughan), Travis Taylor Vaughan (vaughatt), Brenden Guy Vaughan (vaughanb), Charles Mills Vaughan (vaughacm), Katrina Eileen Vaughan (vaughank), Terry Vaughan (vaughant), and Allison Taylor Vaughan (vaughaat). The list is not in alphabetical order.

Entity Name
Paula J Vaughan (vaughan)
Travis Taylor Vaughan (vaughatt)
Brenden Guy Vaughan (vaughanb)
Charles Mills Vaughan (vaughacm)
Katrina Eileen Vaughan (vaughank)
Terry Vaughan (vaughant)
Allison Taylor Vaughan (vaughaat)

- With magnification, the Privileges table column width changes for some of the columns as the mouse goes across a row.