



**Application**    OneStart Portal

**Owners**        Jim Thomas

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**Activity**        Heuristic Evaluation    \_\_\_  
                      Usability Testing        \_\_\_  
                      Accessibility Testing:    √

**Consultants**    Chad Singer                √  
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### Participant Info

#	IU Role	Accessibility tools used	Use of OneStart
1	Staff	<i>Jaws for Windows</i> Speech & Braille	None

### Executive summary

Accessibility testing of the OneStart Portal was conducted with one participant. The accessibility tool used was Jaws for Windows with both Braille and speech options turned on. The purpose of this study was to identify accessibility problems with OneStart and to make recommendations to resolve noted accessibility issues. The participant performed four tasks during a 100-minute session at the Center for Adaptive Technologies at Indiana University.

Results of the evaluation revealed that accessibility issues would have prevented the user from completing tasks if the facilitator had not intervened. In general, the accessibility problems that were found tended to be related to a lack of description of objects on screen (channels, buttons, etc), inefficiency in accessing desired items (channels on a page, channel icons), and an absence of instruction on how to proceed (adding channels, bookmarks, etc). A detailed summary of the results is provided in this report, including observations made during the session and 18 recommendations for the design team to consider as they proceed with the next release of OneStart.

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## Purpose of Study

The purpose of this study was to identify accessibility issues with the OneStart Portal as a follow-up to a similar evaluation which was conducted in January 2001. The recommendations from the 2001 study are presented in Appendix I.

## Method

The evaluation consisted of an unsighted participant completing a series of tasks using a popular screen reader, *Jaws for Windows*, with speech turned on, and a Braille display. A facilitator was present to give tasks, to probe for qualitative data, to ensure the system was working properly. During this evaluation the facilitator gave help when the participant could not proceed in order that key aspects of each task could be evaluated. The session was conducted at the Center for Adaptive Technologies at IU Bloomington and was videotaped for future reference.

## Participant Information

The participant in the accessibility evaluation was an unsighted staff member who currently works in the Center for Adaptive Technologies. She is experienced with general software, the Internet, and is skilled in adaptive technologies. She frequently writes accessibility evaluations for clients of the Center for Adaptive Technologies.

## Visual vs. Auditory Modalities

Non-visual users face very different challenges than those of us who are sighted. Typically, they access spatial 2-D information by means of a screen reader, which translates the text on the screen into speech. While the visual user can quickly access information via scanning and visual comparison, the auditory user must rely on her memory to visualize the placement of items. This places a much higher load on memory and concentration for non-visual users than for visual users.

## Tasks

1. Spend a few minutes exploring OneStart and tell us how you might use it.
2. You want to add Google search ([www.google.com](http://www.google.com)) to your portal. Add Google search to your portal and use the Google search in your portal to find an item of interest.
3. The OneStart portal allows you to store your bookmarks so that you can access them from any computer.
  - a. Use OneStart to create a bookmark for the IU homepage and name it IU.
  - b. Use this bookmark to go to the IU homepage
4. You want to remove the Google channel (or other if unsuccessful at adding Google) channel from OneStart. How would you proceed?

## Accessibility Tool Used

The participant in this evaluation used the latest version of *Jaws for Windows*. During the evaluation, the participant had both Speech and Braille output enabled. The Braille display helps to give a tactile representation of the screen layout and allows the user to click directly to certain areas on the screen. Many users, however, are not able to use Braille displays, and thus rely on a speech only interface. This further reduces their ability to visualize the page.

## Results

The results of the session are presented in the following table. Observations are described in the leftmost column. Interpretations of what caused the problem appear in the center column. Design recommendations addressing the problem are made in the column to the right. The accessibility issues are categorized in three ways according to the observed behavior: *Unclear how to Proceed*, *Inefficient Access to Information*, and *Information not Visible*.

Unclear how to Proceed		
<p><b>Pop-up Windows</b></p> <p>Several times, the user indicated uncertainty about the effect of clicking <i>Close</i> or <i>Save</i>. “I’m not sure what it’s going to close. Will it log me out?”</p> <p>The user unintentionally closed the application, thinking she was still in a pop-up window.</p>	<p>Blind users require more descriptive ALT tags than the button text. This is because a sighted user can read the button text and quickly scan the page to make sense of the buttons functionality by its spatial relationship to other elements on the screen.</p> <p><i>Jaws</i> tells users when a new window is opened. However, after reading through a page of information, it can be difficult to distinguish pop-up windows from the main window. <i>Jaws</i> users can check the window title for this information.</p>	<ol style="list-style-type: none"> <li>1. Enhance ALT tags so that they refer to the window they belong to.</li> <li>2. Add a more descriptive window title so that the user can check to see if the window is a pop-up (e.g. <i>Personalize OneStart Window</i>)</li> </ol>
<p><b>Adding Channels to a Page</b></p> <p>The user was unable to proceed to add the Google channel to a page after entering “Google” into the channel search. <i>Jaws</i> read the results, “Search results for Google. Link Google. Keywords search engine.”</p> <p>While using the search feature to find Google, the user tried to click enter after entering Google. However, nothing happened. The <i>Go</i> button was not on focus. The screen reader gave no feedback.</p>	<p>Search results do not tell the user how to proceed to add the channel to a page. While visual users can scan the directions in the page if they are unsure, unsighted users have likely forgotten that those instructions exist.</p> <p>The user expected <i>Go</i> to have focus. Upon receiving no feedback after clicking <i>Enter</i>, she has to have <i>Jaws</i> read that part of the screen again.</p>	<ol style="list-style-type: none"> <li>3. Change the link text to “Add Google to <i>Page Name</i>”</li> <li>4. If possible, give the <i>Go</i> button focus after the user enters a search term.</li> </ol>
<p><b>Adding Bookmarks</b></p> <p>After adding the bookmark, the <i>Display Bookmarks</i> screen popped up. The user wondered aloud the role of the check box. Finally she concluded that she had to check the box to confirm adding it to her bookmarks channel.</p>	<p>Throughout this page, it was not apparent that the pop-up window was not the bookmarks channel itself.</p>	<ol style="list-style-type: none"> <li>5. Remove the display bookmarks screen from the sequence of adding bookmarks.</li> </ol>

Inefficient Access to Information		
<p><b>Accessing a Channel in a Page</b> While scrolling through links in an unrelated channel, the user wondered aloud, “I’m looking for Google. How many more links are there?”</p> <p>The user had to scroll for several minutes through several channels containing lots of links to find the desired channel.</p>	<p>Users do not know how many channels are on a page, when they are in a channel or what the name of the channel is.</p> <p>There is no way to jump from channel to channel. Adding <i>Next</i> and <i>Previous</i> buttons in the title bar may increase clutter and force the user to scroll back to the button to select it. This is an arduous task with screen reading technology.</p> <p>Un sighted users do not have the visual cue of the scroll bar to estimate how much content is in a channel.</p>	<ol style="list-style-type: none"> <li>6. Replace the I-Frame ID numbers with the name in the title bar.</li> <li>7. Investigate ways to have <i>Jaws</i> read the channel titles as a page summary when the page loads.</li> <li>8. Find out how to make <i>Jaws</i> read the number of links for each channel.</li> <li>9. Create a method for jumping from channel to channel. A keyboard command may be a good solution.</li> <li>10. See 7 &amp; 8</li> </ol>
<p><b>Adding Channels to a Page</b> The user indicated that she would give up when she got to the <i>Personalize Channels &amp; Layout</i> page.</p>	<p><i>Jaws</i> read that there were 245 links on the page. <i>Jaws</i> was referring to the 245 channels in the <i>Channel Selector</i>. This was overwhelming for the user, who said she would probably just stop rather than continue on.</p>	<ol style="list-style-type: none"> <li>11. Collapse the channel listing at the bottom of the page.</li> </ol>

Information not Visible		
<p><b>Logging in</b> The user could not log in initially because there was no indicator of a <i>Login</i> button.</p>	<p>The <i>Login</i> button on the CAS login page did not have an explanatory ALT tag.</p>	<p>12. Add a <i>Login to OneStart</i> ALT tag.</p>
<p><b>Adding Channels to a Page</b> The user stated that she had no idea about the purpose of <i>Column 1</i> and <i>Column 2</i> and the corresponding arrows.</p> <p>After adding the Google channel, the <i>Personalize Layout</i> screen refreshed and <i>Jaws</i> read through all the top information including the <i>Column 1</i>, <i>Column 2</i> items before reading the feedback message that the changes had been made.</p>	<p>The order in which the screen reader reads the <i>Page Preview</i> section of the page does not convey a sense of purpose to the non-visual user. The user indicated uncertainty as regarding the function of the arrows and columns.</p> <p>The columnar layout is lost on unsighted users and adds to the complication when adding or accessing channels.</p> <p>Users may be confused as to why the same screen is being read to them again. This could result in their trying to add the same channel again even though it has already been added.</p>	<p>13. Add an ADA link in the OneStart navigation that will configure OneStart for unsighted users.</p> <p>14. Set the <i>Page Layout</i> to only one column for unsighted users.</p> <p>15. Display the feedback first on the page so that it is read immediately when changes are made.</p>
<p><b>Combo Boxes</b> User struggled with all combo boxes. In some cases, the user was able to access the menus via the Braille display, but the menu was totally inaccessible with speech only.</p>	<p><i>Jaws</i> went into <i>Forms Mode</i>, which is an edit forms feature that allows the user to type into forms. The user indicated that she has no problem with date menus at the bottom of the page on <a href="http://www.hoosiertimes.com">www.hoosiertimes.com</a>.</p>	<p>16. Where possible, remove combo boxes.</p> <p>17. Check <a href="http://www.hoosiertimes.com">www.hoosiertimes.com</a> to see how their drop-down menus are coded. List boxes may work better than combo boxes.</p>
<p><b>Working on My First Page</b> Upon first loading the page, the user wondered, “Is this a blank page.” The user had to manually scroll <i>Jaws</i> down the page to read the content within the Channels.</p>	<p>Typically, <i>Jaws</i> would continue reading into the entire page, starting at the top, going across, then proceeding into the channels. However, on <i>My First Page</i>, <i>Jaws</i> would not read anything below the top navigation section unless the user moved the cursor over a section.</p>	<p>18. Diagnose this problem. Find out if there is a difference in the code between the IUB Staff Group Page and <i>My First Page</i>.</p>

## **Conclusion**

The results of this study indicate that the OneStart Portal needs to present information in a less complex manner in order for non-visual users to be successful using it. This may involve the development of an alternative interface that provides a simpler design without compromising functionality. While application of the above recommendations will help to improve accessibility, further evaluation needs to be conducted.

As a publicly funded institution, Indiana University has an obligation to accommodate its diverse population. Therefore, clear accessibility goals for OneStart need to be established to guide development and evaluation. Ongoing collaboration with the Center for Adaptive Technologies and Usability Consulting Services will aid the OneStart team in identifying and correcting accessibility problems throughout the product lifecycle.

## **Accessibility Resources:**

W3C:

<http://www.w3.org/WAI/>

Jaws for Windows:

[http://www.freedomscientific.com/fs\\_products/software\\_jaws.asp](http://www.freedomscientific.com/fs_products/software_jaws.asp)

## Appendix I

### Recommendations from January 2001 Accessibility Evaluation.

1. The new login screen could have logo, tagline, login area (close to top to improve efficiency), and space for system msgs or announcements re: the portal and any new additions or revisions to watch for.  
  
A link for first time users could be placed here as well that provides instructions/tutorial...  
A link re: ADA compliance and for visually impaired users could also be provided to provide any hints for using the portal.
2. Rename the Personalize window to reflect the multiple options contained: e.g. “Personalization Options” or “Personalization Window”.
3. Ensure that all new windows (e.g. Help windows) are labeled so as to accurately inform the user (e.g. Help for Weather Channel).
4. More testing is required here to know just what the best solution might be. Whether the design involves new browser windows or a switch to a new web page, we must ensure a graceful exit from the Personalize section back to the portal.  
  
A more descriptive ALT TAG on the Save and Close button OR a renaming of the button entirely might be the answer (in conjunction with the overall interaction design for how the Saving sequence works for the tabs inside the Personalize window).
5. Maintain a compartmentalized approach to Personalize features. This makes it easier for users to ignore features they don’t want or cannot make use of (e.g. color).
6. Combine the Content and Layout sections into one window pane. This would allow for two methods of changing content and layout (one that employs Drag and Drop-D&D, and one that is more ADA compliant).
7. For the D&D pane, provide content channels in a scrollable field with a “Add to my Page” button that moves the selected item into the drag and drop area below it. Multiple selections could be made by ctrl-clicking. The selected items would immediately appear in the D&D area below and be available for reordering within and between columns.
8. An “About this Channel” button would also be available to provide the Help window for a selected channel.

9. The ADA pane would present selected channels in more of a list format with the option to reorder channels using simple (move upwards, move downwards, move to other column) buttons or links.
10. Remove the choice of whether a channel is W or N for users. Every channel will be preset in a format appropriate for its content (either single page, narrow or wide). Removing the N/W criteria will allow simpler selection, but may require additional feedback to handle certain selections made (e.g. requesting a single column channel to be placed on a page that is set to 2 or 3 columns).
11. Allow users to select different methods for locating content that is available to them. This might include:
  - Search feature (keyword entry)
  - Alphabetical listing of entire set of channels
  - Categorical listing (by activity type)
  - Recent additions (to view what the latest additions to the portal are)
  - Current selections (to view only the channels you currently have selected).
12. See #5 above... The tabs involved might now be presented as “Content & Layout” with an opportunity on the personalize page to choose a button version that is more ADA compliant.
13. Use a more descriptive ALT TAG on all buttons and graphic links to ensure that the item is specifically tied to the action (e.g. Remove Sports channel from this page).
14. Future calendar design may need an alternative display in order to be ADA compliant. One solution might be to provide options for displaying months, days and events in regular text form like the datebook section of the newspaper.