

Accessibility Evaluation Report

Google Core Apps

URL	http://mail.google.com ; http://calendar.google.com ; http://drive.google.com ; http://sites.google.com
Scope	Google Apps for Education, Core Apps: Gmail, Hangouts, Calendar, Drive, Docs, Sheets, Slides, and Sites
Testing Period	8/11/2014 – 8/22/2014
Tester(s)	Kyle Boatsman (kboatsman@tamu.edu)
Standard	Web Content Accessibility Guidelines 2.0 (WCAG 2.0), Level AA
Tools	Firefox 31, Chrome 36, Internet Explorer 10 ChromeVox 1.31, JAWS 14, NVDA 2013.1.1, NVDA 2014.2 ZoomText Windows 7, Windows 8

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Summary

Accessibility documentation has been significantly updated and improved. Documents have been added specifically for blind and low vision users. Many documents have been updated for the first time since 2011.

Support for common screen readers is greatly improved, but not fully implemented.

Google's ChromeVox remains the most reliable screen reader for all apps, but some apps (most notably, Google Drive) have made significant strides in supporting other common screen readers.

Extensive use of ARIA roles has expanded keyboard functionality, but access still relies heavily on Google's custom keyboard commands. Many elements that were only accessible by mouse or access keys are now accessible using standard keyboard commands. However, many elements can still only be accessed using Google's custom access keys.

Screen magnification and high contrast tools still work very well with all apps. There were only a few cases of color contrast issues. In general, designs and layouts are well suited for low vision users.

Conclusion

Overall, there have been significant improvements to increase the accessibility of most applications. However, access barriers remain, and the apps could be problematic for some users with disabilities. These users will need access to alternative accessible applications, and TAMU employees/departments choosing to use Google Apps will need to plan accordingly.

Gmail

General navigation requires extensive tabbing or screen reader-enabled navigation. Many tasks are made easier with Google's custom keyboard commands, however, some of these conflict with the keyboard commands of common screen readers, which requires frequent pass throughs.

When composing a new message, CC, BCC, and the Formatting options button aren't available using standard keyboard commands. In those cases, Google's custom keyboard commands must be used.

Overall, an experienced screen reader user will likely be able to use the web app. However, many will likely prefer using the app in HTML view (Google's simplified version) or configuring Gmail for use with their desktop email client, due to conflicts with screen reader keyboard commands.

Keyboard users will find the app usable, if they're willing to learn Google's custom keyboard commands. Otherwise, they may also prefer to configure Gmail for use with their desktop email client.

Screen magnification and high contrast users will likely find the app very accessible.

Go to Inbox, Starred, Sent Mail, Drafts, or All Mail messages

Internet Explorer + JAWS	Google's custom keyboard commands require a pass through. Functional but difficult using standard keyboard commands.
Firefox + NVDA	Worked with Google's custom keyboard commands. Worked using standard keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands. Worked using standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Logical focus order. No keyboard traps. Worked using standard keyboard commands. Worked with Google's custom keyboard commands.

Read a message

Internet Explorer + JAWS	Google's custom keyboard commands require a pass through. Functional but difficult using standard keyboard commands.
Firefox + NVDA	Difficult to navigate between messages within a conversation. Google's custom keyboard commands require a manual switch to focus mode. Worked using standard keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands. Worked using standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Difficult to navigate between messages within a conversation using standard keyboard commands. Worked well with Google's custom shortcuts.

Reply to a message

Internet Explorer + JAWS	Google’s custom keyboard commands require a pass through. Works using standard keyboard commands.
Firefox + NVDA	Google’s custom keyboard commands require a manual switch to focus mode. Worked using standard keyboard commands.
Chrome + ChromeVox	Worked with Google’s custom keyboard commands. Worked using standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Logical focus order. No keyboard traps. Worked using standard keyboard commands. Worked with Google’s custom keyboard commands.

Compose a new message

Internet Explorer + JAWS	Google’s custom keyboard commands require a pass through. CC, BCC, and Formatting options buttons aren’t available using standard keyboard commands (must know Google’s keyboard shortcuts).
Firefox + NVDA	Google’s custom keyboard commands require a manual switch to focus mode. CC, BCC, and Formatting options buttons aren’t available using standard keyboard commands (must know Google’s keyboard shortcuts).
Chrome + ChromeVox	Worked with Google’s custom keyboard commands. CC, BCC, and Formatting options buttons aren’t available using standard keyboard commands (must know Google’s keyboard shortcuts).
ZoomText	Focus didn’t shift to the Compose window when expected. This could be momentarily confusing for new users but not problematic.
Keyboard-only	CC, BCC, and Formatting options buttons aren’t available using standard keyboard commands (must know Google’s keyboard shortcuts).

Archive a message

Internet Explorer + JAWS	Google's custom keyboard commands require a pass through. Works using standard keyboard commands.
Firefox + NVDA	Worked with Google's custom keyboard commands. Worked using standard keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands. Worked using standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Logical focus order. No keyboard traps. Worked using standard keyboard commands. Worked with Google's custom keyboard commands.

Search for a message

Internet Explorer + JAWS	Google's custom keyboard commands require a pass through. Works using standard keyboard commands.
Firefox + NVDA	Worked with Google's custom keyboard commands. Worked using standard keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands. Worked using standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Logical focus order. No keyboard traps. Worked using standard keyboard commands. Worked with Google's custom keyboard commands.

Hangouts

Hangouts is reasonably accessible for screen reader, keyboard, and screen magnification users. However, there are potential challenges for deaf and hard of hearing users.

Deaf and hard of hearing users will need other Hangout participants to type what is said during the Hangout session. Google also provides a [Sign Language Interpreter App](#)¹ that can be used

¹ <https://support.google.com/plus/answer/2990988>

in conjunction with Hangouts. The app allows a chat participant to be identified as an interpreter. The interpreter will appear in a small window for the sign user.

Participating in Hangouts

Internet Explorer + JAWS	Google’s custom keyboard commands require a pass through. Works using standard keyboard commands.
Firefox + NVDA	Worked with Google’s custom keyboard commands. Worked using standard keyboard commands.
Chrome + ChromeVox	Worked with Google’s custom keyboard commands. Worked using standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Some focus indicators are difficult to distinguish. Logical focus order. No keyboard traps. Worked using standard keyboard commands. Worked with Google’s custom keyboard commands.

Calendar

General navigation currently requires extensive tabbing or screen reader-enabled navigation. The Day, Week, Month, and Custom multi-day views are not accessible to any screen readers, and remain unsupported by Google. Agenda view is supported and works reasonably well with most screen readers, but audible feedback is not yet available for every action (e.g., deleting an event or removing a guest).

The first link on the page (hidden for sighted users) allows a screen reader user to enable keyboard shortcuts and use Agenda view as the default. This is a very helpful feature, and a welcome addition.

The “Find a time” feature (used to schedule appointments) was only accessible by mouse. Keyboard and screen reader users would need to use “Suggested time” option, which is functional but not an equivalent substitute.

Keyboard users will find the app usable, if they’re willing to learn Google’s custom keyboard commands. Otherwise, they may prefer to configure Calendar for use with their desktop email client (as with Gmail).

Screen magnification and high contrast users will likely find the app very accessible.

Navigating the Day, Week, and Month views

Internet Explorer + JAWS	Not supported.
Firefox + NVDA	Not supported.

Chrome + ChromeVox	Not supported
ZoomText	Worked as expected.
Keyboard-only	Worked with Google’s custom keyboard commands. Does not work using standard keyboard commands.

Navigating the Agenda view

Internet Explorer + JAWS	Google’s custom keyboard commands require a pass through. Most functions worked, however, event details were not read as described in Google’s documentation. Works using standard keyboard commands.
Firefox + NVDA	Google’s custom keyboard commands required a manual switch to focus mode. Worked using standard keyboard commands.
Chrome + ChromeVox	Most functions worked with Google’s custom keyboard commands. However, event details were not read as described in their documentation. Worked using standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Uses browser’s default focus indicator in some areas, sometimes making it difficult to see where focus is present. Logical focus order. No keyboard traps. Worked using standard keyboard commands. Worked with Google’s custom keyboard commands.

Navigating the event page

Internet Explorer + JAWS	Google’s custom keyboard commands require a pass through. Worked using standard keyboard commands.
Firefox + NVDA	Worked using Google’s recommended shortcuts. Worked using standard keyboard commands.
Chrome + ChromeVox	Worked with Google’s custom keyboard commands. Worked using standard keyboard commands.
ZoomText	Worked as expected.

Keyboard-only	Uses browser’s default focus indicator in some areas, sometimes making it difficult to see where focus is present. Logical focus order. No keyboard traps. Worked using standard keyboard commands. Worked with Google’s custom keyboard commands.
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Creating an event

Internet Explorer + JAWS	Unable to access “Find a time” to schedule appointments. Some standard keyboard commands require pass through (toggling radio buttons). Google’s recommended shortcuts require pass through.
Firefox + NVDA	Unable to access “Find a time” to schedule appointments. Google’s custom keyboard commands required a manual switch to focus mode. Worked using standard keyboard commands.
Chrome + ChromeVox	Unable to access “Find a time” to schedule appointments. All other functions worked with Google’s custom keyboard commands. Worked using standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Uses browser’s default focus indicator in some areas, sometimes making it difficult to see where focus is present. Logical focus order. No keyboard traps. Unable to access “Find a time” to schedule appointments. Worked using standard keyboard commands. Worked with Google’s custom keyboard commands.

Drive

Please note: this is an evaluation of the latest version of Drive, which has not rolled out to all accounts. For example, it was available in my personal Google account but not my TAMU account. Additionally, Google’s accessibility help documentation for Google Drive does not appear to be updated for the new version.

Google has added support for screen readers beyond ChromeVox. VoiceOver, NVDA, and JAWS are all supported. However, JAWS does not work well with Drive apps when using Internet Explorer (access to the menu bar and toolbar is inconsistent). Instead, Google recommends using JAWS with Firefox. It should also be noted that many of Google’s custom keyboard commands conflict with VoiceOver, requiring a pass through for many commands.

Keyboard users will find Drive, Docs, Sheets, and Slides accessible with Google’s custom keyboard commands. As with other apps, Google provides a shortcut to bring up a list of keyboard commands within the app (Ctrl + /).

Screen magnification and high contrast users will likely find the app very accessible.

Alt text support has been added. User creating documents within the Google Apps can now include alternative text when inserting an image.

There is still no support for indicating table headers. Users creating documents should refrain from including tables that need headers defined. Presenting information in an alternative format, like a series of lists with headings, is a possible alternative. If table headers are required, an alternative software should be used (e.g., applications from the Microsoft Office suite).

Navigating Google Drive

Internet Explorer + JAWS	Worked with standard keyboard commands.
Firefox + NVDA	Worked with standard keyboard commands.
Chrome + ChromeVox	Worked with Google’s custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Works with standard keyboard commands.

Downloading a doc, file, or folder

Internet Explorer + JAWS	Worked with standard keyboard commands from the Google Drive screen. Worked with Google’s custom keyboard commands with the document open.
Firefox + NVDA	Worked with standard keyboard commands from the Google Drive screen. Worked with Google’s custom keyboard commands with the document open.
Chrome + ChromeVox	Worked with Google’s custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Works with standard keyboard commands from the Google Drive screen. Worked with Google’s custom keyboard commands with the document open.

Uploading a doc, file, or folder

Internet Explorer + JAWS	Worked with standard keyboard commands.
Firefox + NVDA	Worked with standard keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Works with standard keyboard commands.

Share a doc, file, or folder

Internet Explorer + JAWS	Worked with standard keyboard commands.
Firefox + NVDA	Worked with standard keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Works with standard keyboard commands.

Docs

Reading a doc

Internet Explorer + JAWS	Worked with standard keyboard commands.
Firefox + NVDA	Worked with standard keyboard commands.
Chrome + ChromeVox	Worked with standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Worked with standard keyboard commands (i.e., able to scroll down the page).

Creating a doc

Internet Explorer + JAWS	For Drive, Google recommends using JAWS with Firefox. Access to the menu bar and toolbar was inconsistent with Internet Explorer + IE, but worked using Firefox + JAWS with Google's custom keyboard commands.
Firefox + NVDA	Worked with Google's custom keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Worked with Google's custom keyboard commands.

Editing a doc

Internet Explorer + JAWS	For Drive, Google recommends using JAWS with Firefox. Access to the menu bar and toolbar was inconsistent with Internet Explorer + IE, but worked using Firefox + JAWS with Google's custom keyboard commands.
Firefox + NVDA	Worked with Google's custom keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Worked with Google's custom keyboard commands.

Sheets

Reading a sheet

Internet Explorer + JAWS	Worked with standard keyboard commands.
Firefox + NVDA	Worked with standard keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Worked with standard keyboard commands (i.e., able to scroll down and across the spreadsheet).

Creating a sheet

Internet Explorer + JAWS	For Drive, Google recommends using JAWS with Firefox. Access to the menu bar and toolbar was inconsistent with Internet Explorer + IE, but worked using Firefox + JAWS with Google's custom keyboard commands.
Firefox + NVDA	Worked with Google's custom keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Worked with Google's custom keyboard commands.

Editing a sheet

Internet Explorer + JAWS	For Drive, Google recommends using JAWS with Firefox. Access to the menu bar and toolbar was inconsistent with Internet Explorer + IE, but worked using Firefox + JAWS with Google's custom keyboard commands.
Firefox + NVDA	Worked with Google's custom keyboard commands.
Chrome + ChromeVox	Worked with Google's custom keyboard commands.
ZoomText	Worked as expected.

Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Worked with Google’s custom keyboard commands.
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Slides

Reading a slide

Internet Explorer + JAWS	Worked with Google’s custom keyboard commands.
Firefox + NVDA	Worked with Google’s custom keyboard commands.
Chrome + ChromeVox	Worked with Google’s custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Worked with Google’s custom keyboard commands.

Creating a slide

Internet Explorer + JAWS	For Drive, Google recommends using JAWS with Firefox. Access to the menu bar and toolbar was inconsistent with Internet Explorer + IE, but worked using Firefox + JAWS with Google’s custom keyboard commands.
Firefox + NVDA	Worked with Google’s custom keyboard commands.
Chrome + ChromeVox	Worked with Google’s custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Worked with Google’s custom keyboard commands.

Editing a slide

Internet Explorer + JAWS	For Drive, Google recommends using JAWS with Firefox. Access to the menu bar and toolbar was inconsistent with Internet Explorer + IE, but worked using Firefox + JAWS with Google’s custom keyboard commands.
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Firefox + NVDA	Worked with Google’s custom keyboard commands.
Chrome + ChromeVox	Worked with Google’s custom keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Focus order makes sense. No keyboard traps. Worked with Google’s custom keyboard commands.

Sites

Navigating Sites and Site options was reasonably accessible in all cases. With a screen reader, using the Site Editor was difficult, but more advanced screen reader users may find it usable.

Keyboard users will only be able to use the site editor with knowledge of Google’s custom keyboard commands. However, once the basic commands are understood, the site editor works reasonably well.

Low vision users may find it problematic to distinguish menu items in the site editor, due to instances of low contrast.

The biggest area of concern is the content a user is able to produce with the site editor. Many of the site editor tools lack accessibility options. This means the user producing content would need a good understanding of web accessibility standards, and the knowledge to write correct markup within the HTML editor.

Navigating the Site view

Internet Explorer + JAWS	Worked with standard keyboard commands.
Firefox + NVDA	Worked with standard keyboard commands.
Chrome + ChromeVox	Worked with standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Uses browser’s default focus indicator in some areas, sometimes making it difficult to see where focus is present. Logical focus order. No keyboard traps. Worked using standard keyboard commands.

Navigating the Manage Site options

Internet Explorer + JAWS	Worked with standard keyboard commands.
Firefox + NVDA	Worked with standard keyboard commands.
Chrome + ChromeVox	Worked with standard keyboard commands.
ZoomText	Worked as expected.
Keyboard-only	Good focus indicators. Logical focus order. No keyboard traps. Worked using standard keyboard commands.

Using the Site Editor

Internet Explorer + JAWS	Unable to access menus and toolbar using standard keyboard commands. Worked with Google’s custom keyboard commands, but audible feedback is limited.
Firefox + NVDA	Unable to access menus and toolbar using standard keyboard commands. Worked with Google’s custom keyboard commands, but audible feedback is limited.
Chrome + ChromeVox	Worked with Google’s custom keyboard commands.
ZoomText	Color contrast is extremely low for some menu items (e.g., the Insert menu), making it difficult to distinguish items, even in high-contrast modes.
Keyboard-only	Good focus indicators. Logical focus order. No keyboard traps. Many functions must be accessed with Google’s custom keyboard commands.

Creating accessible content

For users creating webpages with Google Sites, the following limitations were found for creating accessible content using Google’s site editor.

- The bold and italic buttons use and <i>. and must be added via code editor.
- Table tools do not include options for table headers, summary, or captions. These must be added via code editor.
- Unable to add a skip to content link.
- Can’t insert IDs using the code editor.

- Users need to choose “don’t show the page title” in the Page Settings. When visible, the page title added using this feature is designated <h3>. It’s possible to manually add the page title through the HTML editor as an H1.
- Not possible to add alt text to site logo. Default alt text supplied is the Google username of the site owner. Site logos should be added manually using the HTML editor.
- There is no option to designate an image as decorative through the add image feature. Users will need to place an empty space in the image description field, to assign a null value to the image’s alt attribute.
- Alt text for an image can only be changed through the HTML editor.

Additional information

Google’s help documentation

- [Making Google Accessible](#)²
- [Administrator Guide to Accessibility](#)³
- [Google Apps for Blind and Low-vision Users](#)⁴
- [Google Accessibility Information for Deaf and Hard of Hearing Users](#)⁵

Google communication channels

- [Google Apps Updates \(Blog\)](#)⁶
- [Google Group for Accessibility](#)⁷

Google Apps at other Universities

- [Google Apps Accessibility at North Carolina State University](#)⁸
- [Google Apps Accessibility at University of Michigan](#)⁹

² <http://www.google.com/accessibility/>

³ <https://support.google.com/a/answer/2821355>

⁴ <https://support.google.com/a/topic/2994293>

⁵ <http://www.google.com/accessibility/products/#hard-of-hearing>

⁶ <http://googleappsupdates.blogspot.com/>

⁷ <https://groups.google.com/forum/#!forum/accessible>

⁸ <http://google.ncsu.edu/accessibility/google-apps-accessibility>

⁹ <https://sites.google.com/a/umich.edu/going-google/accessibility/>