

# **Apple Accessibility Conformance Report**

## **Based on Voluntary Product Accessibility Template® (VPAT®)**

**Name of Product: macOS Mojave 10.14**

**Product Description: The operating system for Mac computers.**

**Date: September 24, 2018**

**Contact information: [accessibility@apple.com](mailto:accessibility@apple.com)**

### **Terms**

The terms used in the Conformance Level information are defined as follows:

- **Supports:** The functionality of the product has at least one method that meets the criteria without known defects or meets with equivalent facilitation.
- **Supports with Exceptions:** Some functionality of the product does not meet the criteria.
- **Does Not Support:** Majority of functionality of the product does not meet the criteria.
- **Not Applicable:** The criteria are not relevant to the product.
- **Not Evaluated:** The product has not been evaluated against the criteria. This can be used only with WCAG 2.0 Level AAA.

# WCAG 2.0 Report -

## Table 1: Conformance Criteria, Level A -

Criteria	Conformance Level	Remarks and Explanations
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, except in situations listed in WCAG 2.0 1.1.1.	Supports with exceptions	VoiceOver, the screen reader built into macOS, provides audio descriptions for non-text content and images presented to the user. However, some user-generated content images may or may not have text alternatives provided.
1.2.1 Audio-only and Video-only (Prerecorded): For prerecorded audio-only and prerecorded video-only media, the following are true, except when the audio or video is a media alternative for text and is clearly labeled as such: <ul style="list-style-type: none"><li>• Prerecorded Audio-only: An alternative for time-based media is provided that presents equivalent information for prerecorded audio-only content.</li><li>• Prerecorded Video-only: Either an alternative for time-based media or an audio track is provided that presents equivalent information for prerecorded video-only content.</li></ul>	Supports with exceptions	macOS supports playback of video media with closed-captioned audio and video text descriptions when provided in industry standard formats. Third-party developers can provide audio or video text descriptions using the AVFoundation framework.
1.2.2 Captions (Prerecorded): Captions are provided for all prerecorded audio content in synchronized media, except when the media is a media alternative for text and is clearly labeled as such.	Supports with exceptions	macOS supports playback of video media with closed-captioned audio and video text descriptions when provided in industry standard formats. Third-party developers can provide audio or video text descriptions using the AVFoundation framework.

Criteria	Conformance Level	Remarks and Explanations
<p>1.2.3 Audio Description or Media Alternative (Prerecorded): An alternative for time-based media or audio description of the prerecorded video content is provided for synchronized media, except when the media is a media alternative for text and is clearly labeled as such.</p>	<p>Supports with exceptions</p>	<p>macOS supports playback of video media with closed-captioned audio and video text descriptions when provided in industry standard formats. Third-party developers can provide audio or video text descriptions using the AVFoundation framework.</p>
<p>1.3.1 Info and Relationships: Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text.</p>	<p>Supports</p>	
<p>1.3.2 Meaningful Sequence: When the sequence in which content is presented affects its meaning, a correct reading sequence can be programmatically determined.</p>	<p>Supports</p>	
<p>1.3.3 Sensory Characteristics: Instructions provided for understanding and operating content do not rely solely on sensory characteristics of components such as shape, size, visual location, orientation, or sound.</p>	<p>Supports with exceptions</p>	<p>macOS assistive technologies provide many alternatives for communicating sensory information, including the option to use greyscale, and to increase contrast for distinguishing foreground and background colors.</p> <p>The Accessibility API also allows third-party developers to provide alternative characteristics for components including sound, size, and orientation.</p>

Criteria	Conformance Level	Remarks and Explanations
<p>1.4.1 Use of Color: Color is not used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.</p>	<p>Supports with exceptions</p>	<p>macOS uses color to convey information. In many cases, when color is used, it provides an alternative information display that does not rely on color. For example, color controls are used in the title bar of macOS windows that allow a user to close, minimize or maximize a window. While color indicates each control's function, each control also has a unique symbol and position that indicates its function without relying on color information. But, there are some visual elements that do not include an alternative information display.</p> <p>macOS also provides system-level control of display characteristics that cannot be overridden by applications, including options to:</p> <ul style="list-style-type: none"> <li>• Switch the display from color to grayscale.</li> <li>• Invert light and dark colors displayed on the screen.</li> <li>• Differentiate certain elements without color.</li> <li>• Increase contrast of elements on the screen.</li> <li>• Reduce the transparency of elements on the screen.</li> </ul> <p>All of these features are accessed through System Preferences for Accessibility and can be used together in different combinations to suit the user's needs.</p>
<p>1.4.2 Audio Control: If any audio on a Web page plays automatically for more than 3 seconds, either a mechanism is available to pause or stop the audio, or a mechanism is available to control audio volume independently from the overall system volume level.</p>	<p>Supports</p>	<p>By default, Safari stops auto-play of media with sound for websites. There is also an option in Safari to never auto-play media when visiting websites.</p> <p>In addition, the default media player provided by WebKit supports pause and resume, as well as controlling audio volume independently from the overall system volume. Third-party web developers may also implement custom controls that meet the audio control requirements.</p>

Criteria	Conformance Level	Remarks and Explanations
<p>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.</p>	<p>Supports</p>	<p>macOS provides keyboard access to operating system interface elements using a feature called “full keyboard access” which controls the keyboard cursor. Full keyboard access can be used to navigate the system including menus, windows, palettes, controls, text boxes, lists, window drawers, and status menus. In certain circumstances, VoiceOver may be used in conjunction with full keyboard access to navigate the system.</p> <p>macOS supports use of standard USB input devices including PC-style keyboards. For full accessibility, some macOS apps may require use of these additional keyboard support features:</p> <ul style="list-style-type: none"> <li>• <b>User-Selectable keyboard layouts</b> include QWERTY, Dvorak, Dvorak Right, Dvorak Left, and many international languages.</li> <li>• <b>Customizable keyboard commands</b> allow users to assign a keyboard combination to any menu item that doesn't already have one assigned or change an existing combination, for a specific application or for the entire system.</li> <li>• <b>Assignable Modifier Keys</b> allows users to turn off and reassign key modifier functions like Caps Lock, Control, Option, and Command to other modifier keys.</li> <li>• <b>Single key Quick Nav</b> allows users to Assign VoiceOver commands to single keys for browsing the web using VoiceOver.</li> <li>• <b>NumPad Commander</b> is a VoiceOver feature that enables a user to navigate and control the computer using a numeric keypad.</li> <li>• <b>Sticky Keys</b>, designed to allow a series of single key presses to be interpreted as a multiple keystroke combination. Sticky Keys is beneficial for people who have difficulty pressing multiple keys simultaneously.</li> </ul>

Criteria	Conformance Level	Remarks and Explanations
		<p>...continued from the previous page.</p> <ul style="list-style-type: none"> <li>• <b>Slow Keys</b>, designed to put a delay between when a key is pressed and when it is accepted by the system. Slow Keys is beneficial for people who may press keys accidentally and often. Click key sounds are also available to provide additional feedback when a key is accepted.</li> <li>• <b>Mouse Keys</b>, designed to allow control of the mouse cursor from the keyboard.</li> <li>• <b>Adjustable keyboard repeat delay</b>, designed to prevent accidental entry of multiple single keystrokes. The setting is adjustable and can be set to not repeat.</li> </ul>
<p>2.1.2 No Keyboard Trap: If keyboard focus can be moved to a component of the page using a keyboard interface, then focus can be moved away from that component using only a keyboard interface, and, if it requires more than unmodified arrow or tab keys or other standard exit methods, the user is advised of the method for moving focus away.</p>	<p>Supports</p>	<p>macOS provides a way to navigate from a focused item, such as a pop-overs, dialogs, sheets and more.</p> <p>If a user encounters a keyboard focus trap, they may use a variety of tools and utilities to reset or control the keyboard focus. Full Keyboard Access, Mouse Keys, VoiceOver, and Switch Control provide ways to control the focus without requiring the ability to operate a pointing device such as a mouse.</p>
<p>2.2.1 Timing Adjustable: For each time limit that is set by the content, at least one of the instances in WCAG 2.0 2.2.1 is true.</p>	<p>Supports with exceptions</p>	<p>There are limited macOS controls over time limits. However, macOS provides an energy saver preference for turning off the display after a range of time including "Never". macOS also allows for a screen saver which can act as a warning that the computer will be put to sleep.</p> <p>Please note: the timing of Bluetooth pairing sessions is limited by the Bluetooth specification and Bluetooth devices.</p>

Criteria	Conformance Level	Remarks and Explanations
<p>2.2.2 Pause, Stop, Hide: For moving, blinking, scrolling, or auto-updating information, all of the following are true:</p> <ul style="list-style-type: none"> <li>• Moving, blinking, scrolling: For any moving, blinking or scrolling information that (1) starts automatically, (2) lasts more than five seconds, and (3) is presented in parallel with other content, there is a mechanism for the user to pause, stop, or hide it unless the movement, blinking, or scrolling is part of an activity where it is essential; and</li> <li>• Auto-updating: For any auto-updating information that (1) starts automatically and (2) is presented in parallel with other content, there is a mechanism for the user to pause, stop, or hide it or to control the frequency of the update unless the auto-updating is part of an activity where it is essential.</li> </ul>	Supports with exceptions	Mac OS includes an accessibility setting called Reduce motion. This setting allows users to further disable or reduce additional types of movement. Third-party developers should follow Mac OS Human Interface Guidelines (HIG) for animation and respect the user's Reduce Motion setting.
<p>2.3.1 Three Flashes or Below Threshold: Web pages do not contain anything that flashes more than three times in any one second period, or the flash is below the general flash and red flash thresholds.</p>	Supports	
<p>2.4.1 Bypass Blocks: A mechanism is available to bypass blocks of content that are repeated on multiple Web pages.</p>	Supports	
<p>2.4.2 Page Titled: Web pages have titles that describe topic or purpose.</p>	Supports	
<p>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.</p>	Supports	

Criteria	Conformance Level	Remarks and Explanations
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.	Supports	Text descriptions are provided for navigation elements such as links, tabs, and buttons throughout macOS. In addition, the Accessibility API provides a method for third-party developers to provide additional help information about these items.
3.1.1 Language of Page: The default human language of each Web page can be programmatically determined.	Supports	
3.2.1 On Focus: When any component receives focus, it does not initiate a change of context. (Level A)	Supports	VoiceOver, the built-in screen reader, does not initiate a change of context without user interaction.
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.	Supports	The Accessibility API allows third-party developers to provide extra information about a setting before content changes are applied.
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.	Supports	<p>If an input error is automatically detected, macOS informs users through dialogs, alert, error messages, and/or audio alerts. VoiceOver can speak descriptions of alerts.</p> <p>WebKit, the web browser engine used by Safari, also allows third-party developers to notify users of errors occurring on web pages.</p>
3.3.2 Labels or Instructions: Labels or instructions are provided when content requires user input.	Supports	The Accessibility API allows developers to specify input labels and bind these labels to an input field.
4.1.1 Parsing: In content implemented using markup languages, elements have complete start and end tags, elements are nested according to their specifications, elements do not contain duplicate attributes, and any IDs are unique, except where the specifications allow these features.	Supports	The Accessibility API allows the developers to specify the boundaries and identification of controls.

Criteria	Conformance Level	Remarks and Explanations
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.	Supports	

**Table 2: Conformance Criteria, Level AA -**

Criteria	Conformance Level	Remarks and Explanations
1.2.4 Captions (Live): Captions are provided for all live audio content in synchronized media.	Supports with exceptions	macOS supports video media with closed-captioned audio and video text descriptions when provided in industry standard formats. Third-party developers can provide audio or video text descriptions using the AVFoundation framework.
1.2.5 Audio Description (Prerecorded): Audio description is provided for all prerecorded video content in synchronized media.	Supports	macOS supports audio descriptions where auxiliary audio tracks are available.
<p>1.4.3 Contrast (Minimum): The visual presentation of text and images of text has a contrast ratio of at least 4.5:1, except for the following:</p> <ul style="list-style-type: none"> <li>• Large Text: Large-scale text and images of large-scale text have a contrast ratio of at least 3:1;</li> <li>• Incidental: Text or images of text that are part of an inactive user interface component, that are pure decoration, that are not visible to anyone, or that are part of a picture that contains significant other visual content, have no contrast requirement.</li> <li>• Logotypes: Text that is part of a logo or brand name has no minimum contrast requirement.</li> </ul>	Supports	In System Preferences for Accessibility, users can increase contrast of the display as well as reduce transparency. With these preferences enabled, the majority of the macOS interface meets a contrast ratio of at least 4.5:1. For some instances where the default contrast ratio is not met, users can change the overall contrast and scale factor of the screen.
1.4.4 Resize text: Except for captions and images of text, text can be resized without assistive technology up to 200 percent without loss of content or functionality.	Supports with exceptions	Applications, such as Safari, Pages, Numbers, Keynote, Mail, and Finder, support increasing font sizes of content up to or over 200%.

Criteria	Conformance Level	Remarks and Explanations
<p>1.4.5 Images of Text: If the technologies being used can achieve the visual presentation, text is used to convey information rather than images of text except for the following:</p> <ul style="list-style-type: none"> <li>• Customizable: The image of text can be visually customized to the user's requirements;</li> <li>• Essential: A particular presentation of text is essential to the information being conveyed.</li> </ul>	Supports	Other than developer-provided or user-generated images, macOS does not use images of text for interface elements.
<p>2.4.5 Multiple Ways: More than one way is available to locate a Web page within a set of Web pages except where the Web Page is the result of, or a step in, a process.</p>	Supports	
<p>2.4.6 Headings and Labels: Headings and labels describe topic or purpose.</p>	Supports	Text descriptions are provided for headings and labels throughout macOS.
<p>2.4.7 Focus Visible: Any keyboard operable user interface has a mode of operation where the keyboard focus indicator is visible.</p>	Supports	There is a visual indication when items are selected using arrows key, and active input fields display an insertion point. VoiceOver also provides a customizable visual indicator of keyboard focus.
<p>3.1.2 Language of Parts: The human language of each passage or phrase in the content can be programmatically determined except for proper names, technical terms, words of indeterminate language, and words or phrases that have become part of the vernacular of the immediately surrounding text.</p>	Supports with exceptions	The Accessibility API can programmatically determine the languages within text areas on webpages, if the author of the content uses the appropriate language tag.
<p>3.2.3 Consistent Navigation: Navigational mechanisms that are repeated on multiple Web pages within a set of Web pages occur in the same relative order each time they are repeated, unless a change is initiated by the user.</p>	Supports	

Criteria	Conformance Level	Remarks and Explanations
3.2.4 Consistent Identification: Components that have the same functionality within a set of Web pages are identified consistently.	Supports	
3.3.3 Error Suggestion: If an input error is automatically detected and suggestions for correction are known, then the suggestions are provided to the user, unless it would jeopardize the security or purpose of the content.	Supports	macOS provides error information, warnings, and suggestions through dialogs or audio alerts.
<p>3.3.4 Error Prevention (Legal, Financial, Data): For Web pages that cause legal commitments or financial transactions for the user to occur, that modify or delete user-controllable data in data storage systems, or that submit user test responses, at least one of the following is true:</p> <ul style="list-style-type: none"> <li>• Reversible: Submissions are reversible.</li> <li>• Checked: Data entered by the user is checked for input errors and the user is provided an opportunity to correct them.</li> <li>• Confirmed: A mechanism is available for reviewing, confirming, and correcting information before finalizing the submission.</li> </ul>	Supports	

# 2017 Section 508 Report -

## Chapter 3: Functional Performance Criteria -

Criteria	Conformance Level	Remarks and Explanations
<p>302.1 Without Vision. Where a visual mode of operation is provided, ICT shall provide at least one mode of operation that does not require user vision.</p>	<p>Supports</p>	<p>macOS includes a built-in screen reader called VoiceOver for the blind and visually impaired and includes accessible applications and utilities.</p> <p>Siri supports natural-language voice commands to send messages, track down files, create reminders, search the web, and more. Siri is integrated with VoiceOver allowing users to have answers read out-loud.</p> <p>macOS includes built-in support for over 100 USB and wireless refreshable braille displays that start instantly when connected. There is also support for over 30 braille tables supporting a wide range of languages.</p> <p>Applications built using the macOS Human Interface Guidelines and the macOS Accessibility APIs will work with VoiceOver. Information about VoiceOver is available at <a href="https://www.apple.com/accessibility/mac/vision/">https://www.apple.com/accessibility/mac/vision/</a></p>

Criteria	Conformance Level	Remarks and Explanations
<p>302.2 With Limited Vision. Where a visual mode of operation is provided, ICT shall provide at least one mode of operation that enables users to make use of limited vision.</p>	<p>Supports</p>	<p>macOS includes many features to assist users with low vision, including but not limited to: VoiceOver, VoiceOver cursor zoom, a scalable mouse cursor, increased contrast with Dark Mode support, and Zoom—a built-in screen magnification feature.</p> <p>VoiceOver also includes a scalable caption panel that displays spoken descriptions of what’s happening on screen as text. VoiceOver in macOS includes built-in voices that speak over 40 languages.</p> <p>With Zoom, users can magnify everything on screen making it larger and easier to see. Text and graphics are enlarged for easier reading and QuickTime video plays magnified without any performance degradation. The powerful Quartz rendering and compositing engine makes Zoom view possible up to 20x.</p> <p>Zoom includes a number of options like the ability to set maximum and minimum values for rapid zooming in and out, zoom in window that allow users to see the zoomed area in a separate window while keeping the rest of the screen at its native size, preview rectangle that outlines the portion of the screen that will be magnified, and three options for how the screen moves as users navigate with the mouse pointer: follow the cursor, only move when cursor reaches an edge, or center the cursor on the screen.</p> <p>Users who prefer to use the mouse can also use VoiceOver to hear a spoken description of information that is under the mouse pointer in addition to using the Zoom feature.</p>

Criteria	Conformance Level	Remarks and Explanations
<p>302.3 Without Perception of Color. Where a visual mode of operation is provided, ICT shall provide at least one visual mode of operation that does not require user perception of color.</p>	<p>Supports with exceptions</p>	<p>macOS uses color to convey information. In many cases, when color is used, it provides an alternative information display that does not rely on color. For example, color controls are used in the title bar of macOS windows that allow a user to close, minimize or maximize a window. While color indicates each control's function, each control also has a unique symbol and position that indicates its function without relying on color information. But, there are some visual elements that do not include an alternative information display.</p> <p>macOS also provides system-level control of display characteristics that cannot be overridden by applications, including options to:</p> <ul style="list-style-type: none"> <li>• Switch the display from color to grayscale.</li> <li>• Invert light and dark colors displayed on the screen.</li> <li>• Differentiate certain elements without color.</li> <li>• Increase contrast of elements on the screen.</li> <li>• Reduce the transparency of elements on the screen.</li> </ul> <p>All of these features are accessed through System Preferences for Accessibility and can be used together in different combinations to suit the user's needs.</p>

Criteria	Conformance Level	Remarks and Explanations
<p>302.4 Without Hearing. Where an audible mode of operation is provided, ICT shall provide at least one mode of operation that does not require user hearing.</p>	<p>Supports</p>	<p>macOS includes a variety of Accessibility features to assist those who are deaf and hard of hearing:</p> <p><b>Flash Screen</b> - macOS provides a visual indication of alert sounds via the Flash Screen feature. When a Mac application attempts to play a system beep alert, macOS instead flashes the screen.</p> <p><b>Notifications</b> – Applications can notify the user of important information using the notification system built into macOS. Notifications all appear in the upper right of the screen making them easy to notice.</p> <p><b>Siri</b> – Users can enable an Accessibility mode called “Type to Siri” to make requests by typing on a physical or onscreen keyboard.</p> <p><b>Dock Notification</b> – The icons of running applications that need attention visually jump up and down in the Dock, providing visual notification in addition to an audible beep or flash.</p> <p><b>FaceTime</b> – FaceTime video conferencing is included with macOS and lets users make audio and video calls to other Mac computers, iPad 2 or later, iPhone 4 or later, or the iPod touch. High-quality video and fast frame rate make FaceTime ideal for those who communicate using sign language. Many users can clearly see both hand and finger gestures in detail giving them the technology to communicate from afar with the same range of emotion used in person.</p>

Criteria	Conformance Level	Remarks and Explanations
		<p>...continued from the previous page.</p> <p><b>QuickTime</b> – The QuickTime media player application supports playback and display of video files that include open and closed captions, and auxiliary text tracks. Users can select the appearance of closed captions and subtitles, including fonts, highlights, and backgrounds.</p> <p><b>iTunes</b> – iTunes supports synchronized playback of captioned video movies, TV shows and podcasts, where available. For additional information, see the iTunes VPAT at <a href="https://support.apple.com/accessibility/vpat">https:// support.apple.com/accessibility/vpat</a>.</p> <p><b>Braille support</b> - macOS includes built-in support for over 100 USB and wireless refreshable braille displays that start instantly when connected. macOS also includes support for over 30 braille tables supporting a wide range of languages.</p>

Criteria	Conformance Level	Remarks and Explanations
<p>302.5 With Limited Hearing. Where an audible mode of operation is provided, ICT shall provide at least one mode of operation that enables users to make use of limited hearing.</p>	<p>Supports with exceptions</p>	<p>Audio is not required for operation of macOS, however, macOS supports video playback of closed caption content and subtitles (when available).</p> <p>macOS also includes features to assist those with limited hearing:</p> <p><b>Mono Audio</b> – combines the left and right stereo channels into a mono signal played through both left and right speakers and headphones so all of the audio program can be heard more easily.</p> <p><b>Sound output</b> – users can choose to play sound through the computer’s internal speakers, display speakers (when available), or through speakers, headphones, and some other devices that are plugged-in or available wirelessly through AirPlay. Users may adjust balance and volume for sound output with available controls in System Preferences for Sound. They can also set the volume and sound that plays for macOS alerts.</p>

Criteria	Conformance Level	Remarks and Explanations
<p>302.6 Without Speech. Where speech is used for input, control, or operation, ICT shall provide at least one mode of operation that does not require user speech.</p>	<p>Supports</p>	<p>Where speech may be required for input, control, or operation, macOS includes the following Accessibility features:</p> <p><b>Siri</b> – Users can enable an Accessibility mode called “Type to Siri” to make requests by typing on a physical or onscreen keyboard.</p> <p><b>FaceTime</b> – FaceTime video conferencing is included with macOS and lets users make audio and video calls to other Mac computers, iPad 2 or later, iPhone 4 or later, or the iPod touch. High-quality video and fast frame rate make FaceTime ideal for those who communicate using sign language. Many users can clearly see both hand and finger gestures in detail giving them the technology to communicate from afar with the same range of emotion used in person.</p>

Criteria	Conformance Level	Remarks and Explanations
<p>302.7 With Limited Manipulation. Where a manual mode of operation is provided, ICT shall provide at least one mode of operation that does not require fine motor control or simultaneous manual operations.</p>	<p>Supports</p>	<p>macOS includes Accessibility features to assist users who do not have fine motor control and can't perform simultaneous actions easily:</p> <p><b>Dictation</b> which is designed to allow users to speak into any text field using the built-in microphone and have the text transcribed back.</p> <p><b>Sticky Keys</b> which is designed to allow a series of single key presses to be interpreted as a multiple keystroke combination. Sticky Keys is beneficial for people who have difficulty pressing multiple keys simultaneously.</p> <p><b>Slow Keys</b> which is designed to put a delay between when a key is pressed and when it is accepted by the system. Slow Keys is beneficial for people who may press keys accidentally and often. Key-click sounds provide additional feedback when a key is accepted.</p> <p><b>Adjustable keyboard repeat delay</b> which is designed to prevent accidental entry of multiple single keystrokes.</p> <p><b>Customizable keyboard commands</b> allow users to assign a keyboard combination to any menu item that doesn't already have one assigned or change an existing combination, for a specific application or for the entire system. Users can also reassign modifier keys to make them easier to reach.</p> <p><b>Single key Quick Nav</b> allows users to Assign VoiceOver commands to single keys for browsing the web using VoiceOver.</p>

Criteria	Conformance Level	Remarks and Explanations
		<p>...continued from the previous page.</p> <p><b>Tracking Speed, Double-click Speed, and Scrolling Speed Adjustment</b> allows users to customize the sensitivity of these controls when using a mouse and trackpad.</p> <p><b>Gestures</b> such as flick, drag, pinch, and tap can be used instead of and in addition to keyboard and mouse controls on Mac models with a Multi-touch trackpad.</p> <p><b>Dictation commands</b> allow users to control certain features of their computer without using a keyboard or mouse.</p> <p><b>Switch Control</b> allows users to control a Mac using an adaptive device such as a switch, a joystick, the space bar on a keyboard, or a single tap on the Multi-touch trackpad.</p> <p>The <b>Accessibility Keyboard</b> allows users to navigate macOS without using a physical keyboard. This is a customizable, onscreen keyboard that gives users with mobility impairments advanced typing and navigation capabilities. In addition, the Accessibility Keyboard supports Dwell allowing users to control the pointer (move, click, double-click, etc.) using head tracking technology.</p> <p><b>Alternate input devices</b> such as trackballs, game controllers, joysticks, keyboard, mice, track pads, graphics tablets and more are also supported. For more information visit <a href="https://www.apple.com/shop/mac/mac-accessories">https://www.apple.com/shop/mac/mac-accessories</a></p>

Criteria	Conformance Level	Remarks and Explanations
<p>302.8 With Limited Reach and Strength. Where a manual mode of operation is provided, ICT shall provide at least one mode of operation that is operable with limited reach and limited strength.</p>	<p>Supports</p>	<p>macOS includes Accessibility features to assist users with limited reach and strength:</p> <p><b>Switch Control</b> allows users to control a Mac using an adaptive device such as a switch, a joystick, the space bar on a keyboard, or a single tap on the Multi-touch trackpad.</p> <p>The <b>Accessibility Keyboard</b> allows users to navigate macOS without using a physical keyboard. This is a customizable, onscreen keyboard that gives users with mobility impairments advanced typing and navigation capabilities. In addition, the Accessibility Keyboard supports Dwell allowing users to control the pointer (move, click, double-click, etc.) using head tracking technology.</p> <p><b>Dictation</b> which is designed to allow users to speak into any text field using the built-in microphone and have the text transcribed back.</p> <p><b>Dictation commands</b> allow users to control certain features of their computer without using a keyboard or mouse.</p> <p><b>Siri</b> supports natural-language voice commands to send messages, track down files, create reminders, search the web, and more. Siri is integrated with VoiceOver allowing users to have answers read out-loud.</p> <p><b>Alternate input devices</b> such as trackballs, game controllers, joysticks, keyboard, mice, track pads, graphics tablets and more are also supported. For more information visit <a href="https://www.apple.com/shop/mac/mac-accessories">https://www.apple.com/shop/mac/mac-accessories</a></p>

Criteria	Conformance Level	Remarks and Explanations
<p>302.9 With Limited Language, Cognitive, and Learning Abilities. ICT shall provide features making its use by individuals with limited cognitive, language, and learning abilities simpler and easier.</p>	<p>Supports</p>	<p>macOS includes Accessibility features to assist users with limited cognitive, language, and learning abilities simpler and easier:</p> <p><b>Text to Speech</b> – Text to Speech reads selected text aloud when a key is pressed. Text to Speech may help with expressive speech development, cognitive and learning disabilities, and more.</p> <p><b>Safari Reader</b> – Safari Reader reduces the visual clutter on webpages by removing ads, buttons, and navigation bars.</p> <p><b>iTunes spoken tracks</b> - Users can highlight text in macOS applications and add them to iTunes as a spoken track. There is an option to adjust speed of media playback through iTunes.</p> <p><b>Simple Finder</b> - With parental controls, a Mac can be set up to be easier to use for people with cognitive and learning disabilities. Simple Finder reduces the Dock to just three folders My Applications, Documents, and Shared. Each of the folders contains just approved apps and folders.</p> <p><b>Dictionary</b> - The built-in Dictionary app lets users look up words and phrases from a variety of sources. Definitions and synonyms help with grammar, spelling, and pronunciation.</p> <p><b>Word Completion</b> - macOS provides word completion in apps like TextEdit and Pages for improving vocabulary and word-building skills.</p> <p><b>Edit Suggestions.</b> Grammar and spelling check as well as substitutions for help users produce more accurate type written documents.</p>

## **Chapter 4: Hardware -**

See VPAT for Mac computers.

## Chapter 5: Software -

Criteria	Conformance Level	Remarks and Explanations
501.1 Scope – Incorporation of WCAG 2.0 AA	See WCAG 2.0 section	See information in WCAG Section
502 Interoperability with Assistive Technology		
502.2.1 User Control of Accessibility Features. Platform software shall provide user control over platform features that are defined in the platform documentation as accessibility features.	Supports	Accessibility features can be controlled within System Preferences for Accessibility or using accessibility shortcuts. Applications can provide additional controls for accessibility features in their preferences.
502.2.2 No Disruption of Accessibility Features. Software shall not disrupt platform features that are defined in the platform documentation as accessibility features.	Supports	macOS includes an Accessibility API that enables applications to interact with assistive technologies without disrupting the system or each other. Details of the Accessibility API are available on the Apple Developer website: <a href="https://developer.apple.com/library/content/documentation/Accessibility/Conceptual/AccessibilityMacOSX/index.html#//apple_ref/doc/uid/TP40001078">https://developer.apple.com/library/content/documentation/Accessibility/Conceptual/AccessibilityMacOSX/index.html#//apple_ref/doc/uid/TP40001078</a>
502.3 Accessibility Services		
502.3.1 Object Information. The object role, state(s), properties, boundary, name, and description shall be programmatically determinable.	Supports	
502.3.2 Modification of Object Information. States and properties that can be set by the user shall be capable of being set programmatically, including through assistive technology.	Supports	

Criteria	Conformance Level	Remarks and Explanations
502.3.3 Row, Column, and Headers. If an object is in a data table, the occupied rows and columns, and any headers associated with those rows or columns, shall be programmatically determinable.	Supports	
502.3.4 Values. Any current value(s), and any set or range of allowable values associated with an object, shall be programmatically determinable.	Supports	
502.3.5 Modification of Values. Values that can be set by the user shall be capable of being set programmatically, including through assistive technology.	Supports	
502.3.6 Label Relationships. Any relationship that a component has as a label for another component, or of being labeled by another component, shall be programmatically determinable.	Supports with exceptions	<p>The majority of built-in applications utilize the Accessibility API to form relationships between controls and their labels. VoiceOver conveys this relationship to end users while navigating through the UI. Third-party developers can also form relationships between controls and labels that are programmatically determinable through the Accessibility API.</p> <p>For unlabeled buttons, VoiceOver allows users to assign labels to unlabeled controls, and save them to a file where they can be shared and imported to and from other Mac computers running OS X 10.6 or later.</p>
502.3.7 Hierarchical Relationships. Any hierarchical (parent-child) relationship that a component has as a container for, or being contained by, another component shall be programmatically determinable.	Supports	
502.3.8 Text. The content of text objects, text attributes, and the boundary of text rendered to the screen, shall be programmatically determinable.	Supports	

Criteria	Conformance Level	Remarks and Explanations
502.3.9 Modification of Text. Text that can be set by the user shall be capable of being set programmatically, including through assistive technology.	Supports	
502.3.10 List of Actions. A list of all actions that can be executed on an object shall be programmatically determinable.	Supports with exceptions	The majority of actions that can be executed on a button or object can be determined programmatically. In a few but rare cases, some object actions may not be listed.
502.3.11 Actions on Objects. Applications shall allow assistive technology to programmatically execute available actions on objects.	Supports with exceptions	In a few but rare cases, assistive technologies may not be able to execute all available actions on an object or button.
502.3.12 Focus Cursor. Applications shall expose information and mechanisms necessary to track focus, text insertion point, and selection attributes of user interface components.	Supports	
502.3.13 Modification of Focus Cursor. Focus, text insertion point, and selection attributes that can be set by the user shall be capable of being set programmatically, including through the use of assistive technology.	Supports	
502.3.14 Event Notification. Notification of events relevant to user interactions, including but not limited to, changes in the component's state(s), value, name, description, or boundary, shall be available to assistive technology.	Supports	

Criteria	Conformance Level	Remarks and Explanations
<p>502.4 Platform Accessibility Features. Platforms and platform software shall conform to the requirements in ANSI/HFES 200.2, Human Factors Engineering of Software User Interfaces — Part 2: Accessibility (2008) (incorporated by reference, see 702.4.1) listed below:</p> <ul style="list-style-type: none"> <li>A. Section 9.3.3 Enable sequential entry of multiple (chorded) keystrokes;</li> <li>B. Section 9.3.4 Provide adjustment of delay before key acceptance;</li> <li>C. Section 9.3.5 Provide adjustment of same-key double-strike acceptance;</li> <li>D. Section 10.6.7 Allow users to choose visual alternative for audio output;</li> <li>E. Section 10.6.8 Synchronize audio equivalents for visual events;</li> <li>F. Section 10.6.9 Provide speech output services; and</li> <li>G. Section 10.7.1 Display any captions provided.</li> </ul>	Supports with exceptions	<p>macOS provides a variety of platform Accessibility features to address the mentioned requirements:</p> <ul style="list-style-type: none"> <li>• <b>Sticky Keys</b>, designed to allow a series of single key presses to be interpreted as a multiple keystroke combination. Sticky Keys is beneficial for people who have difficulty pressing multiple keys simultaneously.</li> <li>• <b>Slow Keys</b>, designed to put a delay between when a key is pressed and when it is accepted by the system. Slow Keys is beneficial for people who may press keys accidentally and often. Click key sounds are also available to provide additional feedback when a key is accepted.</li> <li>• <b>Adjustable keyboard repeat delay</b>, designed to prevent accidental entry of multiple single keystrokes. The setting is adjustable and can be set to not repeat.</li> <li>• <b>Flash screen</b>, designed to provide a visual alternative for audio alerts.</li> <li>• <b>VoiceOver</b>, designed to provide speech output services and audio feedback for visual events.</li> <li>• <b>Captions</b> provide audio and video text descriptions for video media when provided by the developer.</li> </ul> <p>Please note: macOS does not currently provide adjustment of same-key double-strike acceptance.</p>
503 Applications		
<p>503.2 User Preferences. Applications shall permit user preferences from platform settings for color, contrast, font type, font size, and focus cursor.</p>	Supports with exceptions	<p>Applications provide limited user configurability of appearance and focus.</p> <p>VoiceOver does allow users to set preferences per application; however, these preferences do not include color, contrast, font type, font size, and focus cursor.</p>

Criteria	Conformance Level	Remarks and Explanations
503.3 Alternative User Interfaces. Where an application provides an alternative user interface that functions as assistive technology, the application shall use platform and other industry standard accessibility services.	Not Applicable	
503.4 User Controls for Captions and Audio Description.		
503.4.1 Caption Controls. Where user controls are provided for volume adjustment, ICT shall provide user controls for the selection of captions at the same menu level as the user controls for volume or program selection.	Supports with exceptions	<p>macOS supports playback of video media with closed-captioned audio and video text descriptions when provided in industry standard formats.</p> <p>The default media player, provided in conjunction with the AVFoundation framework, contains a control for the selection of captions alongside volume adjustment. This is also true of the QuickTime and iTunes media players, as well as the default WebKit media player.</p> <p>Third-party developers can also implement custom media players, where they may choose whether or not to support the selection of captions.</p>
503.4.2 Audio Description Controls. Where user controls are provided for program selection, ICT shall provide user controls for the selection of audio descriptions at the same menu level as the user controls for volume or program selection.	Supports with exceptions	<p>macOS supports playback of video media with closed-captioned audio and video text descriptions when provided in industry standard formats.</p> <p>The default media player, provided in conjunction with the AVFoundation framework, contains a control for the selection of captions alongside volume adjustment. This is also true of the QuickTime and iTunes media players, as well as the default WebKit media player.</p> <p>Third-party developers can also implement custom media players, where they may choose whether or not to support the selection of captions.</p>

Criteria	Conformance Level	Remarks and Explanations
504 Authoring Tools		
504.2 Content Creation or Editing. Authoring tools shall provide a mode of operation to create or edit content that conforms to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference, see 702.10.1) for all supported features and, as applicable, to file formats supported by the authoring tool. Authoring tools shall permit authors the option of overriding information required for accessibility.	Supports with exceptions	macOS comes with productivity applications, including Pages, Keynote, and Numbers, that allow for creation of content that conforms to the Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0.
504.2.1 Preservation of Information Provided for Accessibility in Format Conversion. Authoring tools shall, when converting content from one format to another or saving content in multiple formats, preserve the information required for accessibility to the extent that the information is supported by the destination format.	Supports with exceptions	Not all authoring tools support preservation of accessibility information when converting content or saving in multiple formats.
504.2.2 PDF Export. Authoring tools capable of exporting PDF files that conform to ISO 32000-1:2008 (PDF 1.7) shall also be capable of exporting PDF files that conform to ANSI/AIIM/ISO 14289-1:2016 (PDF/UA-1) (incorporated by reference, see 702.3.1).	Does not support	
504.3 Prompts. Authoring tools shall provide a mode of operation that prompts authors to create content that conforms to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference, see 702.10.1) for supported features and, as applicable, to file formats supported by the authoring tool.	Does not support	

Criteria	Conformance Level	Remarks and Explanations
504.4 Templates. Where templates are provided, templates allowing content creation that conforms to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference, see 702.10.1) shall be provided for a range of template uses for supported features and, as applicable, to file formats supported by the authoring tool.	Does not support	

## Chapter 6: Support Documentation and Services -

Criteria	Conformance Level	Remarks and Explanations
601.1 Scope		
602 Support Documentation		
<p>602.2 Accessibility and Compatibility Features. Documentation shall list and explain how to use the accessibility and compatibility features required by Chapters 4 and 5. Documentation shall include accessibility features that are built-in and accessibility features that provide compatibility with assistive technology.</p>	Supports	<p>macOS product documentation is available online in an accessible format in accessible HTML format through;</p> <ul style="list-style-type: none"> <li>• Apple Support at <a href="https://www.apple.com/support">https://www.apple.com/support</a></li> <li>• macOS product pages at <a href="https://www.apple.com/macos/mojave">https://www.apple.com/macos/mojave</a> and at <a href="https://www.apple.com/macbook/macos/">https://www.apple.com/macbook/macos/</a></li> <li>• Accessibility product page at <a href="https://www.apple.com/accessibility/mac/">https://www.apple.com/accessibility/mac/</a></li> </ul> <p>Every Mac includes a built-in, interactive VoiceOver tutorial, interactive keyboard learning utility (called Keyboard Practice), and contextual menu system for VoiceOver. macOS help content is also available through the macOS Help menu as well as online through Apple Support.</p> <p>The Switch Control and Accessibility Keyboard guide and the Voice Over guide are delivered as online manual in accessible HTML from <a href="https://support.apple.com/en_US/manuals/macos">https://support.apple.com/en_US/manuals/macos</a>. The Voice Over guide is available electronic .brf braille at no charge. Charges may apply for embossed braille.</p> <p>VPATs for Apple products are available at <a href="https://support.apple.com/accessibility/vpat">https://support.apple.com/accessibility/vpat</a>.</p>

Criteria	Conformance Level	Remarks and Explanations
602.3 Electronic Support Documentation. Documentation in electronic format, including Web-based self-service support, shall conform to Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0 (incorporated by reference, see 702.10.1).	Supports	The electronic web-based product documentation for macOS conforms to both Level A and Level AA Success Criteria and Conformance Requirements in WCAG 2.0.
602.4 Alternate Formats for Non-Electronic Support Documentation. Where support documentation is only provided in non-electronic formats, alternate formats usable by individuals with disabilities shall be provided upon request.	Supports	Product documentation is available in embossed braille via third party provider.
603 Support Services		
603.2 Information on Accessibility and Compatibility Features. ICT support services shall include information on the accessibility and compatibility features required by 602.2.	Supports	Apple Support provides advisors with information on accessibility and compatibility features for macOS. This information is also documented in the product documentation.
603.3 Accommodation of Communication Needs. Support services shall be provided directly to the user or through a referral to a point of contact. Such ICT support services shall accommodate the communication needs of individuals with disabilities.	Supports	Support via the Internet is available through the Apple Knowledge base at <a href="http://www.apple.com/support">http://www.apple.com/support</a> .  For additional information on the many service and support options offered by Apple visit <a href="http://www.apple.com/support">www.apple.com/support</a> .

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