

WCAG 2.0 Accessibility Review

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Introduction

Ohio University Policy 04.001 *Information Technology Accessibility*, in accordance with federal and state law, establishes standards and expectations to facilitate the deployment of information technology that has been designed, developed, or purchased to be accessible to people with disabilities, including those who use assistive technologies. Accessibility generally enhances usability for all users. Thus, by supporting IT accessibility, Ohio university helps ensure that as broad a population as possible will have access to, benefit from, and contribute to its digital information and services.

To facilitate compliance with this university policy and ensure that information technology is accessible, you are being provided with this review. The review serves to evaluate your product's compliance with WCAG 2.0 A standards. To effectively communicate any identified accessibility issues in a timely manner; a review, unless explicitly stated, will consist of WCAG 2.0 A compliance. It will however be your responsibility as the vendor to ensure that your

product meets 2.0 AA compliance. Guidelines around WCAG 2.0 A and AA compliance are provided within this report for your reference.

For your reference we are also providing within the document the standard for WCAG 2.1 compliance, as this is the most current standard and eventually the industry will move toward adopting compliance with WCAG 2.1.

In the event that accessibility deficiencies are identified during this review, it is expected that such deficiencies will be remediated in order to make the product accessible. Our accessibility team will work with you to determine appropriate timelines for remediation and assist with any questions you may have around the review.

Review Details

Date: 05/06/2019

Website or Vendor Name: T1V

Website URL or Application: T1V AirConnect

Version: N/A

Test Configuration: Chrome v. 68.0.344.0.106 (64-bit) / VoiceOver

VPAT:

Reviewer: Justin Lonas

QA:

WCAG Compliance Percentage: 89% (34 / 38) - Fail

Evaluation Summary:

Section	Title (A criteria only)	Pass/Fail/NA	Summary
1.1.1	Non-text Content	Pass	
1.2.1	Prerecorded Audio-only and Video-only	NA	
1.2.3	Audio Description or Media Alternative (Prerecorded)	NA	
1.3.1	Info and Relationships	Pass	
1.3.2	Meaningful Sequence	Pass	
1.3.3	Sensory Characteristics	Pass	
1.4.1	Use of Color	Pass	
1.4.2	Audio Control	Pass	
2.1.1	Keyboard	Fail	Many elements are not keyboard accessible.

2.1.2	No Keyboard Trap	Pass	
2.1.4	Character Key Shortcuts		
2.2.1	Timing Adjustable	Pass	
2.2.2	Pause, Stop, Hide	Pass	
2.3.1	Three Flashes or Below Threshold	Pass	
2.4.1	Bypass Blocks	Fail	
2.4.2	Page Title	Fail	
2.4.3	Focus Order	Fail	
2.4.4	Link Purpose (In Context)	Pass	
2.5.1	Pointer Gestures	Pass	
2.5.2	Pointer Cancellation	Pass	
2.5.3	Label in Name	Pass	
2.5.4	Motion Actuation	Pass	
3.1.1	Language of Page	Pass	
3.2.1	On Focus	Pass	
3.2.2	On Input	Pass	
3.3.1	Error Identification	Needs Testing	
3.3.2	Labels or Instructions	Fail	Many elements are lacking appropriate labels.
4.1.1	Parsing	Pass	
4.1.2	Name, Role, Value	Pass	

Areas Accessed

As we attempt to find all the guideline failures throughout the website/app, it is possible that some may be missed. Ensure that you are following any requirements across the entire app regarding each guideline. Also, please see each guidelines success criterion to see how you can remediate any failures you encounter.

The following sites listed below were subject to a beginning (A)/intermediate (AA) accessibility review.

- **1.4.3 Contrast (Minimum)**
 - Volume percentage number for the volume control lacks the appropriate color contrast of 4.5:1.
 - Filename headers do not have the appropriate color contrast.

- NOTE: Placeholder text in form fields do not have the appropriate color contrast but this is not a failure as the students will not be interacting with this. Thus this is just a note.
- The casting screen indicator at the top of the page while casting your screen to the ThinkHub device does not have the appropriate color contrast.
- **2.1.1 Keyboard**
 - The sliders to move the canvas horizontally is not keyboard accessible.
 - Touch control button is not keyboard accessible.
 - Modal window close button is not keyboard accessible.
 - On the note screen, the note bg and fg color buttons are not keyboard accessible.
 - Collapse button for the top menu bar is not keyboard accessible.
- **2.4.7 Focus Visible**
 - Send button does not have focus visibility.
 - Disconnect button does not obtain visible focus. Additionally the disconnect seems to have an invisible duplicate button after it.
- **3.3.1 Error Identification**
 - NOTE: I did not check for this but be sure that screen readers read errors aloud when users submit erroneous data via forms.
- **3.3.2 Labels or Instructions**
 - Sliders that move you horizontally and vertically on the canvas do not have labels.
 - The volume buttons and slider lacks accessible labels.

Principle 1: Perceivable content is made available to the senses - sight, hearing, and/or touch.

Guideline 1.1 Text Alternatives - Provide text alternatives for any non-text content.

Success Criteria Level A	Recommendations
<u>1.1.1 Non-text Content</u>	<ul style="list-style-type: none"> ● All images, form image buttons, and image map hot spots have appropriate, equivalent alternative text. ● Images that do not convey content, are decorative, or contain content that is already conveyed in text are given null alt text (alt="") or implemented as CSS backgrounds. All linked images have descriptive alternative text. ● Equivalent alternatives to complex images are provided in context or on a separate linked page. ● Form buttons have a descriptive value. ● Form inputs have associated text labels. ● Embedded multimedia is identified via accessible text.

	<ul style="list-style-type: none"> • Frames and iframes are appropriately titled.
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Guideline 1.2 Time-based Media - Provide alternatives for time-based media

Note: If the audio or video is designated as an alternative to web content (e.g., an audio or sign language version of a web page, for example), then the web content itself serves as the alternative.

Success Criteria Level A	Recommendations
1.2.1 Prerecorded Audio-only and Video-only	<ul style="list-style-type: none"> • A descriptive text transcript that includes relevant auditory content is provided for non-live audio-only (audio podcasts, MP3 files, etc.). • A descriptive text transcript or audio description is provided for non-live video-only (e.g., video that has no audio track), unless the video is decorative.
1.2.2 Captions (Prerecorded)	<ul style="list-style-type: none"> • Synchronized captions are provided for non-live video (YouTube videos, etc.).
1.2.3 Audio Description or Media Alternative (Prerecorded)	<ul style="list-style-type: none"> • A descriptive text transcript OR audio description track is provided for non-live video. NOTE: Only required if the video conveys content visually that is not presented via the audio track.

Success Criteria Level AA	Recommendations
1.2.4 Captions (Live)	<ul style="list-style-type: none"> • Synchronized captions are provided for all live multimedia that contains audio (audio-only broadcasts, web casts, video conferences, etc.)
1.2.5 Audio Description (Prerecorded)	<ul style="list-style-type: none"> • Audio descriptions are provided for all video content NOTE: Only required if the video conveys content visually that is not presented via the audio track. • While not required at level AA, WebAIM recommends descriptive transcripts instead of or in addition to audio descriptions for optimal accessibility.

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

Success Criteria Level A	Recommendations
1.3.1 Info and Relationships	<ul style="list-style-type: none"> • Semantic markup is used to designate headings (<h1>), regions/landmarks, lists (, , and <dl>), emphasized or

	<p>special text (, <code>, <abbr>, <blockquote>, for example), etc. Semantic markup is used appropriately.</p> <ul style="list-style-type: none"> • Tables are used for tabular data and data cells are associated with their headers. Data table captions, if present, are associated to data tables. • Text labels are associated with form input elements. Related form elements are grouped with fieldset/legend. ARIA labelling may be used when standard HTML is insufficient.
1.3.2 Meaningful Sequence	<ul style="list-style-type: none"> • The reading and navigation order (determined by code order) is logical and intuitive.
1.3.3 Sensory Characteristics	<ul style="list-style-type: none"> • Instructions do not rely upon shape, size, or visual location (e.g., "Click the square icon to continue" or "Instructions are in the right-hand column"). • Instructions do not rely upon sound (e.g., "A beeping sound indicates you may continue.").

Success Criteria Level AA	Recommendations
1.3.4 Orientation (WCAG 2.1)	<ul style="list-style-type: none"> • Orientation of web content is not restricted to only portrait or landscape, unless a specific orientation is necessary.
1.3.5 Identify Input Purpose (WCAG 2.1)	<ul style="list-style-type: none"> • Input fields that collect certain types of user information have an appropriate autocomplete attribute defined.

Guideline 1.4 Distinguishable – Make it easier for users to see and hear content including separating foreground from background.

Success Criteria Level A	Recommendations
1.4.1 Use of Color	<ul style="list-style-type: none"> • Color is not used as the sole method of conveying content or distinguishing visual elements. • Color alone is not used to distinguish links from surrounding text unless the contrast ratio between the link and the surrounding text is at least 3:1 <i>and</i> an additional distinction (e.g., it becomes underlined) is provided when the link is hovered over and receives focus.
1.4.2 Audio Control	<ul style="list-style-type: none"> • A mechanism is provided to stop, pause, mute, or adjust volume for audio that automatically plays on a page for more than 3 seconds.

Success Criteria Level AA	Recommendations
<u>1.4.3 Contrast (Minimum)</u>	<ul style="list-style-type: none"> Text and images of text have a <u>contrast ratio</u> of at least 4.5:1. Large text - at least 18 point (typically 24px) or 14 point (typically 18.66px) and bold - has a contrast ratio of at least 3:1.
<u>1.4.4 Resize text</u>	<ul style="list-style-type: none"> The page is readable and functional when the page is zoomed to 200%. NOTE: 1.4.10 (below) introduces a much higher requirement for zoomed content.
<u>1.4.5 Images of Text</u>	<ul style="list-style-type: none"> If the same visual presentation can be made using text alone, an image is not used to present that text.
<u>1.4.10 Reflow</u> (WCAG 2.1)	<ul style="list-style-type: none"> No loss of content or functionality occurs and horizontal scrolling is avoided when content is presented at a width of 320 pixels. <ul style="list-style-type: none"> This requires responsive design for most web sites. This is best tested by setting the browser window to 1280 pixels wide and then zooming the page content to 400%. Content that requires horizontal scrolling, such as data tables, complex images (such as maps and charts), toolbars, etc. are exempted.
<u>1.4.11 Non-text Contrast</u> (WCAG 2.1)	<ul style="list-style-type: none"> A contrast ratio of at least 3:1 is present for differentiating graphical objects (such as icons and components of charts or graphs) and author-customized interface components (such as buttons, form controls, and focus indicators/outlines). The various states (focus, hover, active, etc.) of author-customized interactive components must all present 3:1 contrast.
<u>1.4.12 Text Spacing</u> (WCAG 2.1)	<ul style="list-style-type: none"> No loss of content or functionality occurs when the user adapts text line height/spacing to 1.5 times the font size, paragraph spacing to 2 times the font size, word spacing to .16 times the font size, and letter spacing to .12 times the font size. This is best supported by avoiding pixel height definitions for elements that contain text.
<u>1.4.13 Content on Hover or Focus</u> (WCAG 2.1)	<ul style="list-style-type: none"> When additional content is presented on hover or keyboard focus: The newly revealed content can be dismissed (generally via the Esc key) without moving the pointer or keyboard focus, unless the content presents an input error or does not obscure or interfere with other page content.

	<ul style="list-style-type: none"> • The pointer can be moved to the new content without the content disappearing. • The new content must remain visible until the pointer or keyboard focus is moved away from the triggering control, the new content is dismissed, or the new content is no longer relevant.
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Principle 2: Interface forms, controls, and navigation are operable.

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

Success Criteria Level A	Recommendations
<u>2.1.1 Keyboard</u>	<ul style="list-style-type: none"> • All page functionality is available using the keyboard, unless the functionality cannot be accomplished in any known way using a keyboard (e.g., free hand drawing). • Page-specified shortcut keys and accesskeys (accesskey should typically be avoided) do not conflict with existing browser and screen reader shortcuts.
<u>2.1.2 No Keyboard Trap</u>	<ul style="list-style-type: none"> • <u>Keyboard</u> focus is never locked or trapped at one particular page element. The user can navigate to and from all navigable page elements using only a keyboard.
<u>2.1.4 Character Key Shortcuts</u> (WCAG 2.1)	<ul style="list-style-type: none"> • If a keyboard shortcut uses printable character keys, then the user must be able to disable the key command, change the defined key to a non-printable key (Ctrl, Alt, etc.), or only activate the shortcut when an associated interface component or button is focused.

Guideline 2.2 Enough Time – Provide users enough time to read and use content.

Success Criteria Level A	Recommendations
<u>2.2.1 Timing Adjustable</u>	<ul style="list-style-type: none"> • If a page or application has a time limit, the user is given options to turn off, adjust, or extend that time limit. This is not a requirement for real-time events (e.g., an auction), where the time limit is absolutely required, or if the time limit is longer than 20 hours.
<u>2.2.2 Pause, Stop, Hide</u>	<ul style="list-style-type: none"> • Automatically moving, blinking, or scrolling content (such as carousels, marquees, or animations) that lasts longer than 5 seconds can be paused, stopped, or hidden by the user.

	<ul style="list-style-type: none"> Automatically updating content (e.g., a dynamically-updating news ticker, chat messages, etc.) can be paused, stopped, or hidden by the user or the user can manually control the timing of the updates.
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Guideline 2.3 Seizures and Physical Reactions – Do not design content in a way that is known to cause seizures or physical reactions.

Success Criteria Level A	Recommendations
2.3.1 Three Flashes or Below Threshold	<ul style="list-style-type: none"> No page content flashes more than 3 times per second unless that flashing content is sufficiently small and the flashes are of low contrast and do not contain too much red. (See general flash and red flash thresholds)

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

Success Criteria Level A	Recommendations
2.4.1 Bypass Blocks	<ul style="list-style-type: none"> A link is provided to skip navigation and other page elements that are repeated across web pages. A proper heading structure and/or identification of page regions/landmarks may be considered a sufficient technique. Because navigating by headings or regions is not supported in most browsers, WebAIM recommends a "skip" link (in addition to headings and regions) to best support sighted keyboard users.
2.4.2 Page Title	<ul style="list-style-type: none"> The web page has a descriptive and informative page title.
2.4.3 Focus Order	<ul style="list-style-type: none"> The navigation order of links, form elements, etc. is logical and intuitive.
2.4.4 Link Purpose (In Context)	<ul style="list-style-type: none"> The purpose of each link (or form image button or image map hotspot) can be determined from the link text alone, or from the link text and its context (e.g., surrounding text, list item, table cell, or table headers). Links (or form image buttons) with the same text that go to different locations are readily distinguishable.

Success Criteria Level AA	Recommendations
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<u>2.4.5 Multiple Ways</u>	<ul style="list-style-type: none"> • <u>Multiple ways</u> are available to find other web pages on the site - at least two of: a list of related pages, table of contents, site map, site search, or list of all available web pages.
<u>2.4.6 Headings and Labels</u>	<ul style="list-style-type: none"> • Page headings and labels for form and interactive controls are informative. Avoid duplicating heading (e.g., "More Details") or label text (e.g., "First Name") unless the structure provides adequate differentiation between them.
<u>2.4.7 Focus Visible</u>	<ul style="list-style-type: none"> • It is visually apparent which page element has the current keyboard focus (i.e., as you tab through the page, you can see where you are).

Guideline 2.5 Input Modalities – Make it easier for users to operate functionality through various inputs beyond keyboard.

Success Criteria Level A	Recommendations
<u>2.5.1 Pointer Gestures</u> (WCAG 2.1)	<ul style="list-style-type: none"> • If multipoint or path-based gestures (such as pinching, swiping, or dragging across the screen) are not essential to the functionality, then the functionality can also be performed with a single point activation (such as activating a button).
<u>2.5.2 Pointer Cancellation</u> (WCAG 2.1)	<ul style="list-style-type: none"> • To help avoid inadvertent activation of controls, avoid non-essential down-event (e.g., onmousedown) activation when clicking, tapping, or long pressing the screen. Use onclick, onmouseup, or similar instead. If onmouseup (or similar) is used, you must provide a mechanism to abort or undo the action performed.
<u>2.5.3 Label in Name</u> (WCAG 2.1)	<ul style="list-style-type: none"> • If an interface component (link, button, etc.) presents text (or images of text), the accessible name (label, alternative text, aria-label, etc.) for that component must include the visible text.
<u>2.5.4 Motion Actuation</u> (WCAG 2.1)	<ul style="list-style-type: none"> • Functionality that is triggered by moving the device (such as shaking or panning a mobile device) or by user movement (such as waving to a camera) can be disabled and equivalent functionality is provided via standard controls like buttons.

Principle 3: Information and the operation of user interface must be understandable.

Guideline 3.1 Readable - Make text content readable and understandable.

Success Criteria Level A	Recommendations
<u>3.1.1 Language of Page</u>	<ul style="list-style-type: none"> The language of the page is identified using the HTML lang attribute (e.g., <html lang="en">).

Success Criteria Level AA	Recommendations
<u>3.1.2 Language of Parts</u>	<ul style="list-style-type: none"> The language of page content that is in a different language is identified using the lang attribute (e.g., <blockquote lang="es">).

Guideline 3.2 Predictable – Make content appear and operate in predictable ways.

Success Criteria Level A	Recommendations
<u>3.2.1 On Focus</u>	<ul style="list-style-type: none"> When a page element receives focus, it does not result in a substantial change to the page, the spawning of a pop-up window, an additional change of keyboard focus, or any other change that could confuse or disorient the user.
<u>3.2.2 On Input</u>	<ul style="list-style-type: none"> When a user inputs information or interacts with a control, it does not result in a substantial change to the page, the spawning of a pop-up window, an additional change of keyboard focus, or any other change that could confuse or disorient the user unless the user is informed of the change ahead of time.

Success Criteria Level AA	Recommendations
<u>3.2.3 Consistent Navigation</u>	<ul style="list-style-type: none"> Navigation links that are repeated on web pages do not change order when navigating through the site.
<u>3.2.4 Consistent Identification</u>	<ul style="list-style-type: none"> Elements that have the same functionality across multiple web pages are consistently identified. For example, a search box at the top of the site should always be labeled the same way.

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

Success Criteria Level A	Recommendations
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3.3.1 Error Identification	<ul style="list-style-type: none"> Required form elements or form elements that require a specific format, value, or length provide this information within the element's label. Form validation errors are efficient, intuitive, and accessible. The error is clearly identified, quick access to the problematic element is provided, and the user can easily fix the error and resubmit the form.
3.3.2 Labels or Instructions	<ul style="list-style-type: none"> Sufficient labels, cues, and instructions for required interactive elements are provided via instructions, examples, properly positioned form labels, and/or fieldsets/legends.
Success Criteria Level AA	Recommendations
3.3.3 Error Suggestion	<ul style="list-style-type: none"> If an input error is detected (via client-side or server-side validation), suggestions are provided for fixing the input in a timely and accessible manner.
3.3.4 Error Prevention (Legal, Financial, Data)	<ul style="list-style-type: none"> If the user can change or delete legal, financial, or test data, the changes/deletions can be reversed, verified, or confirmed.

Principle 4: Content must be robust enough that it can be interpreted by a wide variety of user agents, including assistive technologies.

[Guideline 4.1 Compatible](#) – Maximize compatibility with current and future user agents, including assistive technologies.

Success Criteria Level A	Recommendations
4.1.1 Parsing	<ul style="list-style-type: none"> Significant HTML/XHTML validation/parsing errors are avoided. Check at http://validator.w3.org/
4.1.2 Name, Role, Value	<ul style="list-style-type: none"> Markup is used in a way that facilitates accessibility. This includes following the HTML/XHTML specifications and using forms, form labels, frame titles, etc. appropriately. ARIA is used appropriately to enhance accessibility when HTML is not sufficient.
Success Criteria Level AA	Recommendations
4.1.3 Status Messages (WCAG 2.1)	<ul style="list-style-type: none"> If an important status message is presented and focus is not set to that message, the message must be announced to screen reader users, typically via an ARIA alert or live region.

