

# Voluntary Product Accessibility Template (VPAT) for

#### 25Live

Section 508 Standards Compliancy (1194)



### **Acronyms**

Acronym	Definition
VPAT	Voluntary Product Accessibility Template (this document). It details how the CollegeNET web application meets the accessibility requirements of the ADA by mapping to the WCAG 2.0, 508 Refresh standard.
ADA	Americans with Disabilities Act
WCAG (1.0 & 2.0)	Web Content Accessibility Guidelines <a href="http://www.w3.org/TR/WCAG10/">http://www.w3.org/TR/WCAG10/</a> (1.0) <a href="http://www.w3.org/TR/WCAG20/">http://www.w3.org/TR/WCAG20/</a> (2.0)
WAI	Web Accessibility Initiative body that created the WCAG and is under the umbrella of the W3C. <a href="http://www.w3.org/WAI/">http://www.w3.org/WAI/</a>
W3C	World Wide Web Consortium. An international community working together to develop web standards and maintain their specifications. WAI is the W3C's accessibility initiative. <a href="http://www.w3.org">http://www.w3.org</a>
FAR	Federal Acquisition Regulations systems which publish all policies and procedures for all executive agencies. <a href="https://www.acquisition.gov/Far/">https://www.acquisition.gov/Far/</a>
508/255 Refresh	Reflects WCAG 2.0 and has passed draft stage. It is the product of the working group the Access Board requested in 2006 to update the accessibility standards for Rehabilitation Act (Section 508 1973) and the Telecommunications Act (Section 255 1996). http://508-255-refresh.trace.wisc.edu/
508	Section 508 of the American Disabilities Act (reflects WCAG 1.0 level 1)  http://www.section508.gov/
255	Section 255 of the Telecommunications Act
JAWS 11	JAWS® for Windows Screen Reading Software (Assistive Technology) <a href="http://www.freedomscientific.com/products/fs/jaws-product-page.asp">http://www.freedomscientific.com/products/fs/jaws-product-page.asp</a>
NVDA 2010.1	NonVisual Desktop Access. A free and open-source screen reader for the Microsoft Windows operating system (Assistive Technology).
	http://www.nvda-project.org/

Page 2

#### **Overview**

The purpose of this Voluntary Product Accessibility Template (VPAT) is to assist federal contracting officials, users of assistive technologies, and others in making preliminary assessments regarding the availability of Information Technology products and services with features that support accessibility, and to highlight our compliancy.

This VPAT applies the following sections of the Section 508 Standards for Electronic and Information Technology of the Americans with Disabilities Act (ADA) to the CollegeNET web sites/web applications and its VeriSign Identity Protection.

- Section 1194.22, for Web-based Intranet and Internet Information and Applications
- Sections 1194.31 and 1194.41 (Functional Performance and Information/Documentation)

Additionally, this VPAT details the success criteria used to show compliance with these sections.

#### The 508/255 Refresh

In 2006, the Access Board started an update of the accessibility laws due to technology changes, differences in interpretation, and international harmonization. Since the Web Content Accessibility Guidelines (WCAG) had been officially updated to 2.0 in December of 2008, the 2.0 version of the WCAG was used heavily in this update effort. This effort to reconcile WCAG 1.0 level one (the basis for the existing Section 508) to WCAG 2.0 is called the 508/255 Refresh.

In July of 2009, the Ad Hoc Committee presented its final draft for Access Board approval, and the final rule of 508 was published with Federal Acquisition Regulations (FAR) and moved into the public involvement stage. Since then, it has gone through sub-committee, public information meetings, and open question/feedback periods. Though currently a recommendation, the updated draft of Section 508/255 is expected to be close to if not exactly as it stands currently.



#### **Information on this VPAT**

This VPAT describes the following web site/application:

Web Site/Application Name	25Live
URLs	https://25live.collegenet.com/*
Web Site Owner	CollegeNET®
Scope of Assessment	The information below describes CollegeNET's 25Live applications, versions 1.2x's ability to support the applicable U.S. Section 508 Standards, subject to CollegeNET's interpretations of those standards and the remarks in this document.
Compliance Level	Level AA

Initial Testing for this VPAT was completed in: January, 2016 Last updated in: June, 2016

- Version tested: 25Live, release 26
- Assistive technologies used to test: none
- Automated tools and hand validation also used: hand validation only

### **Compliancy**

The following tables indicate the code section, compliance criteria, success criteria, and any explanatory text needed to show the support for Section 508 and its corresponding WCAG 2.0 (508/255 Refresh) criteria. Remarks add additional clarification specific to the CollegeNET 25Live.

For more detailed information, the 508-specific paragraph information in the Statement column of the compliancy table is linked to the Access Board site through the section letters (A). WCAG 1 checkpoints are linked to the W3C specific guideline, and WCAG 2.0 success criteria in Techniques are linked to the W3C WCAG 2.0 full reference.

As shown in these tables, the 25Live complies with the standards as defined for an accessible website.



# Principle 1: Perceivable – Information and user interface components must be presentable to users in ways they can perceive.

Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)
	Text Alternatives: Provide text alternatives for any non-text content so that it ca print, braille, speech, symbols or simpler language.	n be changed	into other for	ms people need,
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 for the situations listed below (Level A).  Controls, Input: If non-text content is a control or accepts user input, then it has a name that describes its purpose. (Refer to Guideline 4.1 for additional requirements for controls and content that accepts user input.)  Time-Based Media: If non-text content is time-based media, then text alternatives at least provide descriptive identification of the non-text content. (Refer to Guideline 1.2 for the additional requirements for media.)  Test: If non-text content is a test or exercise that would be invalid if presented in text, then text alternatives at least provide descriptive identification of the non-text content.  Sensory: If non-text content is primarily intended to create a specific sensory experience, then text alternatives at least provide descriptive identification of the non-text content.  CAPTCHA: If the purpose of non-text content is to confirm that content is being accessed by a person rather than a computer, then text alternatives that identify and describe the purpose of the non-text content are provided, and alternative forms of CAPTCHA using output modes for different types of sensory perception are provided to accommodate different disabilities.  Decorative, Formatting, Invisible: If non-text content is pure decoration, is used only for visual formatting, or is not presented to users, then it is implemented in a way that it can be ignored by assistive technology.	Yes	Yes	Not all images in the application have alt tags to allow screen readers and other adaptive technology to interpret them. Plans to update are in progress.  The majority of images are decorative and not necessary for navigation.



Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)
Guideline 1.2 7	Time-based Media: Provide alternatives for time-based media.			
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 (Level A):  • Prerecorded Audio-only: An alternative for time-based media is provided that presents equivalent information for prerecorded audio-only content.  • 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.	No	Yes	Customers may use audio and video content, but it is not part of the software application.
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. (Level A)	No	Yes	Audio content is not native to the application.
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. (Level A)	No	Yes	Audio Description and Media Alternatives are not native to the application.
1.2.4	Captions (Live): Captions are provided for all live audio content in synchronized media. (Level AA)	No	Yes	Audio content is not native to the application.
1.2.5	Audio Description (Prerecorded): Audio description is provided for all prerecorded video content in synchronized media. (Level AA)	No	Yes	Audio content is not native to the application.
1.2.6	Sign Language (Prerecorded): Sign language interpretation is provided for all prerecorded audio content in synchronized media. (Level AAA)	No	Yes	Video content is not native to the application.
1.2.7	Extended Audio Description (Prerecorded): Where pauses in foreground audio are insufficient to allow audio descriptions to convey the sense of the video, extended audio description is provided for all prerecorded video content in synchronized media. (Level AAA)	No	Yes	Audio content is not native to the application.
1.2.8	Media Alternative (Prerecorded): An alternative for time-based media is provided for all prerecorded synchronized media and for all prerecorded video-only media. (Level AAA)	No	Yes	Audio and video content are not native to the application.
1.2.9	Audio-only (Live): An alternative for time-based media that presents equivalent information for live audio-only content is provided. (Level AAA)	No	Yes	Audio content is not native to the application.



Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)
Guideline 1.3 A	Adaptable: Create content that can be presented in different ways (for example structure.	simpler layou	t) without los	ing
1.3.1	Info and Relationships: Information, structure, and relationships conveyed through presentation can be programmatically determined or are available in text. (Level A)	Yes	Yes	Different display options and font choices are available. Important data can be exported via reports.
1.3.2	Meaningful Sequence: When the sequence in which content is presented affects its meaning, a correct reading sequence can be programmatically determined. (Level A)	Yes	Yes	Order of event wizard cards and editors are predetermined and logical.
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. (Level A)	Yes	Yes	All important instructions include both text and images.
Guideline 1.4 E	Distinguishable: Make it easier for users to see and hear content including sepan	ating foregro	ınd from bacı	kground.
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. (Level A)	Yes	Yes	Most of the application is black text on white or light background.
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. (Level A)	No	Yes	Audio content is not native to the application.
1.4.3	<ul> <li>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: (Level AA)"</li> <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>	Yes	Yes	25Live meets the minimum contrast requirement.
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. (Level AA)	Yes	Yes	Text in application tabs is clipped for some tabs, but tooltip and images are available for additional context.



Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)
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: (Level AA)  • Customizable: The image of text can be visually customized to the user's	Yes	Yes	Important information is conveyed via text.
	requirements;  • Essential: A particular presentation of text is essential to the information being conveyed.			
1.4.6	<ul> <li>Contrast (Enhanced): The visual presentation of text and images of text has a contrast ratio of at least 7:1, except for the following: (Level AAA)</li> <li>Large Text: Large-scale text and images of large-scale text have a contrast ratio of at least 4.5:1;</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>	Yes	Yes	Most text in the application is black on a white background.
1.4.7	Low or No Background Audio: For prerecorded audio-only content that (1) contains primarily speech in the foreground, (2) is not an audio CAPTCHA or audio logo, and (3) is not vocalization intended to be primarily musical expression such as singing or rapping, at least one of the following is true: (Level AAA)  • No Background: The audio does not contain background sounds.  • Turn Off: The background sounds can be turned off.  • 20 dB: The background sounds are at least 20 decibels lower than the foreground speech content, with the exception of occasional sounds that last for only one or two seconds.	No	Yes	Audio content is not native to the application.



Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)
1.4.8	<ul> <li>Visual Presentation: For the visual presentation of blocks of text, a mechanism is available to achieve the following: (Level AAA)</li> <li>Foreground and background colors can be selected by the user.</li> <li>Width is no more than 80 characters or glyphs (40 if CJK).</li> <li>Text is not justified (aligned to both the left and the right margins).</li> <li>Line spacing (leading) is at least space-and-a-half within paragraphs, and paragraph spacing is at least 1.5 times larger than the line spacing.</li> <li>Text can be resized without assistive technology up to 200 percent in a way that does not require the user to scroll horizontally to read a line of text on a full-screen window.</li> </ul>	No	No	Colors can't be selected by the user, but are not necessary for understanding the application. Width is wider than 80 characters. Text is not justified. Line spacing is not always 1.5 spaces, but little reading is required. Text cannot be resized to 200% without being clipped.
1.4.9	Images of Text (No Exception): Images of text are only used for pure decoration or where a particular presentation of text is essential to the information being conveyed. (Level AAA)	No	Yes	No images of text are used.

#### Principle 2: Operable - User interface components and navigation must be operable.

Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)
Guideline 2.1 K	eyboard Accessible: Make all functionality available from a keyboard.			
2.1.1	Keyboard: All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes, except where the underlying function requires input that depends on the path of the user's movement and not just the endpoints. (Level A)	Yes	Yes	This requirement applies mainly to the event creation area of the application. Plans to update are in progress.
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. (Level A)	Yes	Yes	There are no keyboard traps in the application.
2.1.3	Keyboard (No Exception): All functionality of the content is operable through a keyboard interface without requiring specific timings for individual keystrokes. (Level AAA)	Yes	No	Plans to update are in progress.



Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)			
Guideline 2.2 E	Guideline 2.2 Enough Time: Provide users enough time to read and use content.						
2.2.1	<ul> <li>Timing Adjustable: For each time limit that is set by the content, at least one of the following is true: (Level A)</li> <li>Turn off: The user is allowed to turn off the time limit before encountering it; or</li> <li>Adjust: The user is allowed to adjust the time limit before encountering it over a wide range that is at least ten times the length of the default setting; or</li> <li>Extend: The user is warned before time expires and given at least 20 seconds to extend the time limit with a simple action (for example, "press the space bar"), and the user is allowed to extend the time limit at least ten times; or</li> <li>Real-time Exception: The time limit is a required part of a real-time event (for example, an auction), and no alternative to the time limit is possible; or</li> <li>Essential Exception: The time limit is essential and extending it would invalidate the activity; or</li> <li>20 Hour Exception: The time limit is longer than 20 hours.</li> </ul>	Yes	Yes	Server time limits can be customized, but application does not time out when the user is in the process of searching for information or creating events.			
2.2.2	<ul> <li>Pause, Stop, Hide: For moving, blinking, scrolling, or auto-updating information, all of the following are true: (Level A)</li> <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>	No	Yes	25Live does not natively include moving, blinking, scrolling, or autoupdating information.			
2.2.3	No Timing: Timing is not an essential part of the event or activity presented by the content, except for non-interactive synchronized media and real-time events. (Level AAA)	No	Yes	Timed events are not native to the application.			
2.2.4	Interruptions: Interruptions can be postponed or suppressed by the user, except interruptions involving an emergency. (Level AAA)	Yes	Yes	There are no interruptions once the user starts using the application.			
2.2.5	Interruptions: Interruptions can be postponed or suppressed by the user, except interruptions involving an emergency. (Level AAA)	Yes	Yes	There are no interruptions once the user starts using the application.			



Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)
Guideline 2.3 S	eizures: Do not design content in a way that is known to cause seizures.			
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. (Level A)	No	Yes	The application does not natively flash.
2.3.2	Three Flashes: Web pages do not contain anything that flashes more than three times in any one second period. (Level AAA)	No	Yes	The application does not natively flash.
Guideline 2.4 N	lavigable: Provide ways to help users navigate, find content, and determine who	ere they are.		
2.4.1	Bypass Blocks: A mechanism is available to bypass blocks of content that are repeated on multiple Web pages. (Level A)	Yes	Yes	Help blocks can be dismissed or minimized.
2.4.2	Page Titled: Web pages have titles that describe topic or purpose. (Level A)	Yes	Yes	
2.4.3	Focus Order: If a Web page can be navigated sequentially and the navigation sequences affect meaning or operation, focusable components receive focus in an order that preserves meaning and operability. (Level A)	Yes	Yes	The event wizard has a focus order followed when users create events.
2.4.4	Link Purpose (In Context): The purpose of each link can be determined from the link text alone or from the link text together with its programmatically determined link context, except where the purpose of the link would be ambiguous to users in general. (Level A)	Yes	Yes	Native links within the application are descriptive and their purpose is obvious.
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. (Level AA)	Yes	Yes	
2.4.6	Headings and Labels: Headings and labels describe topic or purpose. (Level AA)	Yes	Yes	Headings and labels are descriptive.
2.4.7	Focus Visible: Any keyboard operable user interface has a mode of operation where the keyboard focus indicator is visible. (Level AA)	No	Yes	25Live is not a keyboard operable interface at this time.
2.4.8	Location: Information about the user's location within a set of Web pages is available. (Level AAA)	Yes	Yes	Each tab and subtab is clearly labeled.
2.4.9	Link Purpose (Link Only): A mechanism is available to allow the purpose of each link to be identified from link text alone, except where the purpose of the link would be ambiguous to users in general. (Level AAA)	No	No	Other than the text, no mechanism is available for determining link purpose.
2.4.10	Section Headings: Section headings are used to organize the content. (Level AAA)	Yes	Yes	The application is tab- based and each tab is labeled.



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

Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)			
Guideline 3.1 R	Guideline 3.1 Readable: Make text content readable and understandable.						
3.1.1	Language of Page: The default human language of each Web page can be programmatically determined. (Level A)	Yes	Yes	Language can be determined with standard tools.			
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. (Level AA)	Yes	Yes	Language can be determined with standard tools.			
3.1.3	Unusual Words: A mechanism is available for identifying specific definitions of words or phrases used in an unusual or restricted way, including idioms and jargon. (Level AAA)	Yes	Yes	Online help is available for the application and includes a glossary.			
3.1.4	Abbreviations: A mechanism for identifying the expanded form or meaning of abbreviations is available. (Level AAA)	Yes	Yes	Online help is available for the application.			
3.1.5	Reading Level: When text requires reading ability more advanced than the lower secondary education level after removal of proper names and titles, supplemental content, or a version that does not require reading ability more advanced than the lower secondary education level, is available. (Level AAA)	No	Yes	Text does not require more advanced reading level than lower secondary education.			
3.1.6	Pronunciation: A mechanism is available for identifying specific pronunciation of words where meaning of the words, in context, is ambiguous without knowing the pronunciation. (Level AAA)	No	Yes	Pronunciation is not vital to application usage.			
Guideline 3.2 P	redictable: Make Web pages appear and operate in predictable ways.						
3.2.1	On Focus: When any component receives focus, it does not initiate a change of context. (Level A)	Yes	Yes	Focused components don't change context.			
3.2.2	On Input: Changing the setting of any user interface component does not automatically cause a change of context unless the user has been advised of the behavior before using the component. (Level A)	Yes	Yes	User must initiate change of context.			
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. (Level AA)	Yes	Yes	Navigation is consistent whenever possible.			
3.2.4	Consistent Identification: Components that have the same functionality within a set of Web pages are identified consistently. (Level AA)	Yes	Yes	Components are duplicated across the application for ease of use.			



Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)
3.2.5	Change on Request: Changes of context are initiated only by user request or a mechanism is available to turn off such changes. (Level AAA)	Yes	Yes	User must initiate change of context.
Guideline 3.3 Ir	nput Assistance: Help users avoid and correct mistakes.			
3.3.1	Error Identification: If an input error is automatically detected, the item that is in error is identified and the error is described to the user in text. (Level A)	Yes	Yes	Errors are displayed for some fields automatically; other errors are displayed on submission.
3.3.2	Labels or Instructions: Labels or instructions are provided when content requires user input. (Level A)	Yes	Yes	Labels and instructions are provided.
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. (Level AA)	Yes	Yes	Suggestions are provided, sometimes generally. This is an area where we are continuously looking to make improvements
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: (Level AA)  • Reversible: Submissions are reversible.  • Checked: Data entered by the user is checked for input errors and the user is provided an opportunity to correct them.  • Confirmed: A mechanism is available for reviewing, confirming, and correcting information before finalizing the submission.	No	Yes	Some fields will initiate a financial transaction. Information is reversible.
3.3.5	Help: Context-sensitive help is available. (Level AAA)	Yes	Yes	Help is available.
3.3.6	<ul> <li>Error Prevention (All): For Web pages that require the user to submit information, at least one of the following is true: (Level AAA)</li> <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>	Yes	Yes	Submissions are reversible, data is checked, both programmatically and by users, and many mechanisms are available for reviewing.



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

Standard	Description	Apply Yes/No	Meets Yes/No	Comments (mandatory)
Guideline 4.1 Compatible: Maximize compatibility with current and future user agents, including assistive technologies.				
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. (Level A)	Yes	Yes	Due to the application development language, this is required for it to function.
4.1.2	Name, Role, Value: For all user interface components (including but not limited to: form elements, links and components generated by scripts), the name and role can be programmatically determined; states, properties, and values that can be set by the user can be programmatically set; and notification of changes to these items is available to user agents, including assistive technologies. (Level A)	Yes	Yes	Most data elements in the application are available for customization and can be determined programmatically.