

Mobile Accessibility – The Status of Accessibility in Mobile devices

The Accessible Technology Webinar Series is sponsored by the Great Lakes ADA Center and the Pacific ADA Center, both members of the ADA National National

The Session is Scheduled to begin at 1:00 pm CT We will be testing sound quality periodically

1

Webinar Features

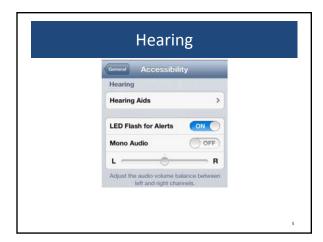
- Closed captioning click CC icon (located in the Audio/Video Panel) or control-F8 (command-F8) and adjust your screen.
- Questions Highlight "Great Lakes" in the participant list and "right click" on your
 mouse to send a private message. Type your message into the chat area that
 appears. The question will be viewed by all moderators. (Keyboard F6, Arrow up
 or down to locate "Great Lakes" and select to send a message)
- Customize your view You can change the size and location of any of the panels (Chat, etc.) by hovering your mouse over the icon at the right of each panel and select "Detach Panel". Each panel can be repositioned and resized.
- Please do not use emoticons or hand-raising features during this session

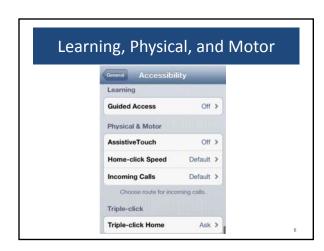
iAccessibility



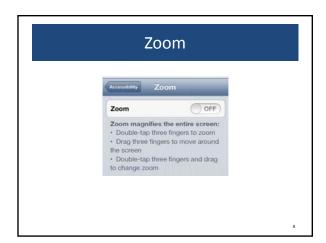
Speaker Paul Adam
<u>@PaulJAdam</u> on Twitter
<u>Paul@PaulJAdam.com</u> iMessage me too ;)
<u>www.PaulJAdam.com</u>



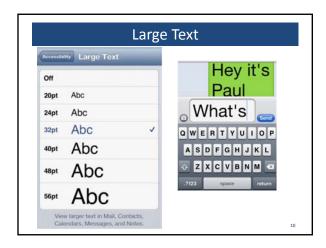




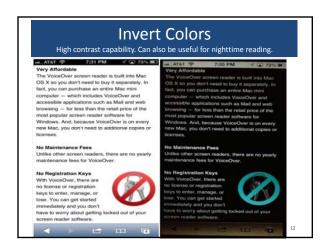


























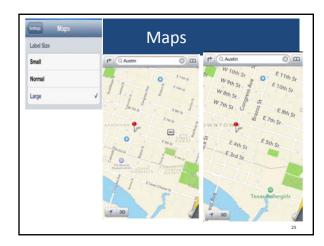
















Siri Resources

- Siri FAQ
- http://www.apple.com/iphone/features/siri.h
- Blind user shown in Apple Siri Promo video.

Siri Commands

- Setup a meeting at 9 am tomorrow
- Wake me up tomorrow at 6 am
- Remind me to organize my calendar when I get home What is the date this Saturday?
- How many days till Christmas
- Set a timer for 2 minutes
- Email Jackie
- Tell Jackie
- Directions to home
- Where can I get a good burger What time is it in San Francisco?
- Will it rain tomorrow?

- Where am I?
- Note that I spent 12 dollars on lunch
- How are the markets doing? Who was the 5th president of the united states?
- How many dollars is 45 euros?
- What is the population of Washington dc?
- What is the price of gasoline in Austin, tx?
 Tell me a Joke
- Knock Knock
- What do you look like

Blind Photography

Number, size, and location of faces announced by VoiceOver. Panorama photos also tell a VoiceOver user to "Slow Down", and "Move Up/Down"







Cognitive Accessibility

We all have problems remembering things. These included apps are great for cognitive accessibility!

Reminders

- Medication Reminders
- Bus Stop Exit Location Reminder
- Homework Deadlines

Calendar

- Meetings
- Appointments

Notes

• These all sync between iPads, iPhones, and Macs via iCloud.

32

Item Chooser Item Chooser (122) Several add-on... Shop the Siri, 3 Siri on iPhone... Site Map Speak Selection... Store Support Tactile Buttons, 3 TecEar Terms of Use



New iOS 6 Accessibility Features

- Tap labels to set focus on explicitly connected inputs. Ever try to tap a tiny little radio button in iOS 5? Very hard! Now you can just tap the label giving users a large tap target.
- · Highlight Selection
- · Guided Access for Students with Autism
- Home-click Speed
- Made for iPhone Hearing Aids
- Custom Vibration Patterns for All Notifications
- VoiceOver and Zoom Work Together! & AssistiveTouch
- Accessibility Actions rotor setting that allows easy access to custom gestures like swipe right to delete.



Keyboard Commands

- VoiceOver Keyboard Commands for iOS 4.1 and Later
- VoiceOver Commands / Keyboard Shortcuts
- Navigate using a Bluetooth Keyboard on your iOS Device

Gesture Commands

- **Drag over the screen**. Select and speak each item as you touch it.
- **Tap**. Speak the selected item.
- **Two-finger tap**. Stop speaking the current item.
- Flick right or left. Select the next or previous item.
- **Double tap**. Activate the selected item.
- Two-finger flick up. Read all accessible items from the top of the
- **Two-finger flick down**. Read all accessible items from the current position.
- Enter text on the keyboard. Flick left or right to select the desired key, then double-tap to enter the character. Alternatively, you can drag your finger over the keyboard until the desired key is selected. Then, while holding the selected key with one finger, tap the screen with another finger to enter the character. Flick up or down to move the insertion point forward or backward in the text.

 Scroll a list or area of the screen.

- Scroll a list or area of the screen.
 Flick up or down with three fingers.
 Adjust a slider. Flick up or down
 (with a single finger) to increase or
 decrease the setting.
- **Unlock iPhone**. Select the Unlock switch, then double-tap the screen.

Testing Resources

Bookmarklets

Favelets for Checking Web Accessibility

Before & After (Good & Bad) Testing **Playgrounds**

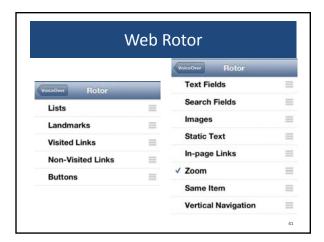
- W3C's Before and After Demonstration
- Accessible University 2.0

Use a Checklist

• WCAG 2.0 Checklist

•	_
7	_













Accessible Websites and Web View Apps

- Accessible Websites and Web View Apps
- · Respect the Rotor!
- · Label Your Forms! Use Fieldsets and Legends
- <u>Caption and Tag Your Tables with Row & Colum Headers</u>
- HTML5 Input Types Are Your Friends
- Control CSS3 Speech Verbosity
- WAI-ARIA is WAY Cool!
- FOCUS on Focus Management! Avoid tabindex=1+, learn the power of tabindex=0 and -1.
- Form Validation FTW!
- Mobilize and Optimize for Small Screens

46

Simple Mobile & Screen Magnification Usability & Accessibility Enhancements

Place Label Above Input

By placing the label directly above the input you improve the experience for mobile and screen magnification users. When focus is in the input the label will no longer be cut off like in the below example of the Gmail sign up form where the label is placed to the left but cut off when viewed on an iPhone.



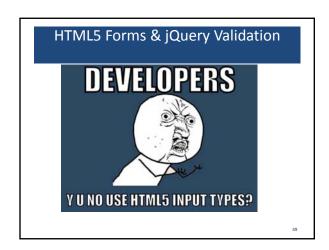
Position Formatting Instructions Below Input with CSS

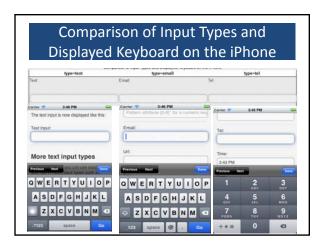


 Using CSS you can enclose formatting instructions in a span tag and position them directly under the input so they are still visible when zoomed in.

Hiding Labels Using CSS

You may want to visually hide some labels where the input might be obvious to most sighted users. We can use CSS positioning to do this. The code for this comes from the WebAIM article, CSS in Action: Invisible Content Just for Screen Reader

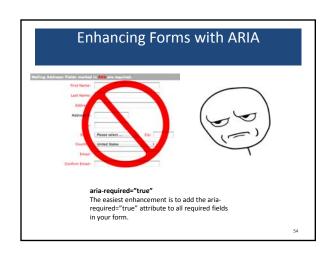








Accessible Client-side Form Validation with HTML5 Does not work on iOS Different Input Types with the Required Attribute in Action on Mac OS X Lion | Committee | C



Don't worry about having the HTML5 required attribute and the aria-required="true" attribute and causing repetition. All the screen readers I've tested only speak required once. Here aria-required is your failback for browsers who do not support HTML5 like internet Explorer. This way screen readers which support ARIA will speak the ARIA attribute when used with IE and ignore the HTML5 attribute. Password * Use 6-20 characters, at least 1 uppercase letter and 1 number.

Aria Label

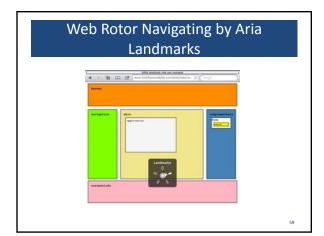
aria-label

• Only works in iOS if there is not a connected label. Otherwise, label overrides aria-label.

jQuery Validation

 Accessible Client-side Form Validation with <u>HTML5, WAI-ARIA, & the jQuery Validation</u> Plugin







jQuery Resources

- Docs and Demos
- Form Element Gallery

Sites That Behave Like Apps

• Configuring Web Applications - Safari Web Content Guide

61

Audio and Video

- HTML5rocks Audio + Video
- Safari HTML5 Audio and Video Guide
- Everything you need to know about HTML5 video and audio





Flicking Down with Two Fingers At a Glance The both of the state of

Native App Accessibility supporting accessibility does not impact your ability to innovate and create beautiful iPhone applications Apple Docs Accessibility Programming Guide for iOS UlAccessibility Protocol Reference UlAccessibilityElement Class Reference UlAccessibilityContainer Protocol Reference UlAccessibilityFocus Protocol Reference UlAccessibilityFocus Protocol Reference

Interface Builder Accessibility **Attributes**

The UI Accessibility programming interface defines the following attributes:

- Label. A short, localized word or phrase that succinctly describes the control or view, but does not identify the element's type. Examples are "Add" or "Play."

 Traits. A combination of one or more individual traits, each of which describes a single aspect of an element's state, behavior, or usage. For example, an element that behaves like a keyboard key and that is currently selected can be characterized by the combination of the Keyboard Key and Selected traits.

 Hint. A brief, localized phrase that describes the results of an action on an element. Examples are "Adds at title" or "Opens the shopping list."

 Frame. The frame of the element in screen
- Frame. The frame of the element in screen coordinates, which is given by the CGRect structure that specifies an element's screen location and size.
- Value. The current value of an element, when the value is not represented by the label. For example, the label for a slider might be "Speed," but its current value might be "50%."

- (BOOL)isAccessibilityElement
- (NSString *)accessibilityLabel

(UIAccessibilityTraits)accessib ilityTraits

- (CGRect)accessibilityFrame
- (NSString *)accessibilityHint
- (NSString
- *)accessibilityValue

Make an image view accessible

• UIImageView *view = [[UIImageView alloc] initWithImage:image]; view.accessibilityLabel = @"Apple Logo";

@property BOOL isAccessibilityElement ■ Return YES to make VoiceOver see this element ■ Default is YES for UIKit controls @property(copy) NSString *accessibilityLabel

■ A textual representation of the element

Best Practices

- Use short, concise labels
 Good: "Add city"
 Bad: "Adds a city to the list of cities"

Don't include the type information in the label

- Good: "Remove city"
 Bad: "Remove city button"
 @property(copy) NSString *accessibilityHint
 Optional
 Provides more information to aid VoiceOver users
- @property UIAccessibilityTraits accessibilityTraits
- Defines behavior
- Bitmask of integers

Enhance the Accessibility of Table Views

Testing with Accessibility Inspector in the iOS Simulator

Using Accessibility Inspector to Test Your Application







Grouping Accessibility Children

• @property BOOL should Group Accessibility Children



- Group items together to control the order VoiceOver visits elements
- UIAccessibilityTraits UIAccessibilityTraitHeader
 - New trait in order to mark elements as a header



Check if Assistive Technology Running?

Use UIAccessibilityIsVoiceOverRunning() to determine if VoiceOver is running. Listen for UIAccessibilityVoiceOverStatusChanged to know when VoiceOver starts or stops.

UIKT_EXTERN BOOL UIAccessbillityls/voico-oretunning) NS_AVAILABLE_IOS(4_0);
UIKT_EXTERN NSString 'const Ulaccessbillityls/voico-oretunning) NS_AVAILABLE_IOS(4_0);
UIKT_EXTERN NSString 'const Ulaccessbillityls/voice-oretunning) NS_AVAILABLE_IOS(4_0);
// Returns whether system audio is mixed down from stere to mono.
UIKT_EXTERN BOSTING TOOL UIAccessbillityls/MonoAudioFabiled) NS_AVAILABLE_IOS(5_0);
UIKT_EXTERN NSSTRING 'const UlaccessbillitylMonoAudioStatusDidChangeNotification NS_AVAILABLE_IOS(5_0);

NS_AVAILABLE_USJS_TYPE

// Returns whether the system preference for closed captioning is enabled.

UIKT_EXTERN BOOL UIAccessibilityIsclosedCaptioningEnabled() NS_AVAILABLE_IOS(5_0);

UIKT_EXTERN SString *Const UIAccessibilityClosedCaptioningStatusDidChangeNotification NS_AVAILABLE_IOS(5_0);

NS_AVAILABLE_IOS(5_0);

// Returns whether the system preference for invert colors is enabled.

IMIT_EXTEN BOOL UNAccessibility/sinvertColorsEnabled() NS_AVAILABLE_IOS(6_0);

IMIT_EXTEN BOOL UNACCESSIBILITY/sinvertColorsSatusDidChangeRotification

NS_AVAILABLE_IOS(6_0);

// Returns whether the app is running under Guided Access mode.

IMIT_EXTEN BOOL UNACCESSIBILITY/souldedAccessEnabled() NS_AVAILABLE_IOS(6_0);

UNIT_EXTEN NSString* Const UNACCESSIBILITY/GuidedAccessSatusDidChangeNotification

NS_AVAILABLE_IOS(6_0);

Accessibility Notifications

- Tell VoiceOver something happened
 - When a few items change, VoiceOver should "update"

UIAccessibilityPostNotification(

UIAccessibilityLayoutChangedNotification, nil);

• When the screen changes, VoiceOver should "reset"

UIAccessibilityPostNotification(

UIAccessibilityScreenChangedNotification, nil);

State

Informs whether the receiving view should be considered modal by accessibility. If YES, then elements outside this view will be ignored. Only elements inside this view will be exposed.

default == NO

property(nonatomic) BOOL accessibilityViewIsModal NS_AVAILABLE_IOS(5_0);

- @property BOOL accessibilityElementsHidden

 Tells VoiceOver to ignore all elements contained within
- @property CGPoint accessibilityActivationPoint
 The point where VoiceOver will simulate a touch event
 (BOOL)accessibilityPerformEscape
- Allows VoiceOver to cancel or exit a modal state

iOS 6 new stuff

- New VoiceOver API
 (BOOL)accessibilityPerformMagicTap
 Control what happens when user does two-finger double-tap

Implement accessibilityPerformMagicTap on an element, or the application, in order to provide a context-sensitive action. For example, a music player can implement this to start and stop playback, or a recording app could start and stop recording. Return YES to indicate that the action was handled. default == NO

- (BOOL)accessibilityPerformMagicTap NS_AVAILABLE_IOS(6_0);

Move VoiceOver focus

• Use the element as the argument when posting

UIAccessibilityLayoutChangedNotification or UIAccesibilityScreenChangeNotification UIButton *moveToButton = ... UIAccessibilityPostNotification(${\sf UIAccessibilityScreenChangedNotification,}$ moveToButton);

Transports 17/2 100 April 17/2 100 April 17/2			
oundation.h> N UncessibilityConstant.h	United framework	A CONTRACTOR OF THE PARTY OF TH	NSSnadow.h NSSnadow.h NSSnrogOraning.h NSText.h

#import <UIKit/UIAccessibilityAdditions.h>
#import <UIKit/UIAccessibilityConstants.h>
#import <UIKit/UIAccessibilityElement.h>
#import <UIKit/UIAccessibilityIdentification.h>
#import <UIKit/UIAccessibilityZoom.h>

79

UIAccessibility

 UIAccessibility is implemented on all standard UIKit views and controls so that assistive applications can present them to users with

disabilities.

Custom items in a user interface should override aspects of UIAccessibility to supply details where the default value is incomplete.

For example, a UlImageView subclass may need to override accessibilityLabel, but it does not need to override accessibilityFrame.

A completely custom subclass of UIView might need to override all

of the UIAccessibility methods except accessibilityFrame.

@interface NSObject (UIAccessibility)

80

Accessibility Traits

Traits are combined in a mask to help assistive applications understand the meaning and intended use of a particular accessibility element.

UIKit applies appropriate traits to all standard controls, however the following traits may be used in conjunction with custom controls.

When setting accessibility traits, combine custom traits with [super accessibilityTraits]. An incorrect combination of custom traits will cause accessibility clients to incorrectly interpret the element. Use common sense when combining traits.

typedef uint64_t UIAccessibilityTraits

// Used when the element has no traits.
UIKIT_EXTERN UIAccessibilityTraits UIAccessibilityTraitNone;
// Used when the element should be treated as a button.
UIKIT_EXTERN UIAccessibilityTraits UIAccessibilityTraitButton;

// Used when the element should be treated as a link. UIKIT_EXTERN UIAccessibilityTraits UIAccessibilityTraitLink;

UIKIT_EXTERN UIAccessibilityTraits UIAccessibilityTraitLink;
// Used when an element acts as a header for a content section (e.g. the title of a navigation bar).
UIKIT_EXTERN UIAccessibilityTraits UIAccessibilityTraitHeader
NS_AVAILABLE_IOS(6_0);
// Used when the text field element should also be treated as a search field.
UIKIT_EXTERN UIAccessibilityTraits UIAccessibilityTraitSearchField;
// Used when the element should be treated as an image. Can be combined with button or link, for example.
UIKIT_EXTERN UIAccessibilityTraits UIAccessibilityTraitImage;

Direct Interaction

Using direct interaction - (id)initWithFrame:(CGRect)frame {

KeyView *aKey = [KeyView new]; aKey.isAccessibilityElement = YES; aKey.accessibilityLabel = @"A";

 $- (UIAccessibility Traits) accessibility Traits \ \{$ return

 ${\tt UIAccessibility Trait Allows Direct Interaction};\\$

- (BOOL)isAccessibilityElement { return YES; }



Drag & Drop



Using announcements

#define Post UIAccessibilityPostNotification

- (void)continueTracking:(id)touch {

if (isNearEdge(touch))

Post (UIAccessibility Announcement Notification.

@"Nearing %@ border", borderLabel(touch));

if (isOnEmptySpace(touch))

Post (UIAccessibility Announcement Notificat

@"On empty space. Lift finger to cancel");

if (isOnDifferentIcon(touch)) Post (UIAccessibility Announcement Notificat

@"On top of Artists. Lift finger to replace");

Apple's Accessibility Videos & Tutorials

- Apple Developer Center Videos
- WWDC2012 Accessibility for iOS Raising the Bar

View in iTunes Presentation Slides

Improving Accessibility in Books View in iTunes Presentation Slides

- WWDC2011
- Combining Web Accessibility and Automation on iOS View in iTunes Presentation Slides

IOS Accessibility - Making great accessible apps View in ITunes Presentation Slides

- Accessibility on iPhone OS View in iTunes Presentation Slides Safari Development Resources

- Improving Accessibility in Web Applications

Stanford Fall 2010



Resources

Developing Apps for iOS Accessibility On IOS Make an app for everyone View In iTunes

Accessibility Inspirational Video

<u>Developers in Action - Making a difference. One app at a time.</u> Per Busch Ariadne GPS app

Speech Language Pathology

Apple Accessibility Developer Mailing List

Email Apple at accessibility@apple.com

App Wins

- VisionSim
- LookTel Money Reader
- EyeNote
- oMoby
- Red Laser
- VizWiz
- <u>iPhone / iPad Apps for Magnification and Vision Support</u>

88



iTunes

- Closed captions and audio descriptions that the user can turn on or off as needed.
- Open subtitles and descriptions that are available to everyone watching or listening.
- Closed subtitles for adding multiple language tracks to video files.
- · Accessible PDFs.



Video Resources

- Creating Accessible iTunes U Content Videos in iTunes
- Creating Accessible iTunes U Content PDF
- Example Video with Closed Captions and Closed Descriptions

91

iBooks



92

Creating ePubs



Creating ePub files with Pages
 A table of contents is automatically generated, which allows readers to jump quickly to any chapter title, heading, or subheading in the book. Review your document to be certain that appropriate paragraph styles are applied to all chapters, titles, headings, and subheadings in your document.

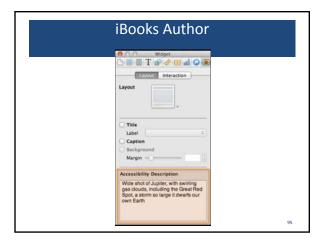
Then open the Document inspector and click TOC (table of contents). Select all of the paragraph styles that you want to appear in the TOC, and then click Update.

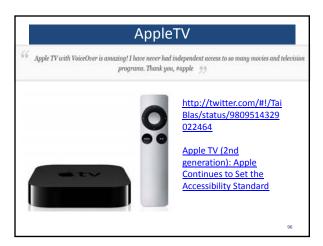
Reformat any images, shapes, or other objects in your document to make them inline objects.

How to make your own epub books for iBooks

Adding Alt Text to iBook ePubs

- Making Image in ePub Documents for the iPad Accessible
- Export to ePub from <u>Pages for Mac</u>.
- Expand with **Stuffit Expander**.
- Find .xhtml files.
- Edit with Dreamweaver.
- Add Alt text.
- Convert back to ePub with <u>Calibre</u>.





Caption your iTunes Content

http://www.youtube.com/ • Searching for Closed watch?feature=player_em bedded&v=zd4 nHPYpNw



- Captioned Content in <u>iTunes U</u>
- Search Tech-Ease 4 All in iTunes for some CC
- VoiceOver in action on Apple TV 2nd gen and activating captions.

Questions?

Speaker Paul Adam @PaulJAdam on Twitter Paul@PaulJAdam.com iMessage me too ;) www.PaulJAdam.com



Thank you for participating!

NEXT SESSION IS MARCH 21, 2013 ACCESSIBILITY TESTING IN ENTERPRISES BIG AND SMALL

This session was recorded and will be archived in two days at

http://www.ada-audio.org/Webinar/AccessibleTechnology/

www.ada-audio.org

877-232-1990 (V/TTY)

$\overline{}$	$\overline{}$
J	_
_	