Auditing Your Apps for Accessibility
Making your apps accessible with greater ease
Session 407

Susumu Harada Accessibility Engineer
Patti Hoa Accessibility Engineer
Vision

Physical and motor skills

Hearing

Learning and literacy
VoiceOver  Reduce transparency  On/Off labels  Grayscale  Audio descriptions

Word prediction  Mono audio  AssistiveTouch  Button shapes  Speak screen

Gliding cursor speed  Subtitles  Captioning  Closed captions  Speech  Increase contrast

Switch control  Larger text  Dictation  Siri  Bold text

Invert colors  Cursor color  Speech  Increase contrast  Zoom  Reduce motion

Larger cursor  Safari reader  Guided access  Slow Keys  Touch accommodations  Hearing aids  Sticky keys  Gestures

Auto scanning
Example App
Math Learner
Example App
Math Learner
Example App
Math Learner
Example App
Math Learner
Vision
Example App
Math Learner

Vision

VoiceOver

[Graphic showing a mobile app with visual and audio elements, demonstrating accessibility features.]
Example App
Math Learner

"Five plus three equals"
Example App
Math Learner

VoiceOver
Example App
Math Learner

VoiceOver

Element locations
Example App
Math Learner

Element traits

VoiceOver
Example App
Math Learner

VoiceOver

Element traits

Static text
Example App
Math Learner

VoiceOver

Element labels
Example App
Math Learner

VoiceOver

Element labels

“Five plus three equals”
Static text

“Main Menu”
Button

“Addition”
Heading

“One”
Button

“Four”
Button

“Eight”
Button

“Nine”
Button

“Help”
Button
Example App
Math Learner

VoiceOver

Five plus three equals
One

Main Menu
Addition

Four
Eight
Nine
Help
Example App
Math Learner

VoiceOver

Accessibility API

“Five plus three equals”
Static text

“One”
Button

“Four”
Button

“Eight”
Button

“Nine”
Button

“Help”
Button

“Main Menu”
Button

“Addition”
Heading
When the App Is Inaccessible

VoiceOver
When the App Is Inaccessible

VoiceOver

Element locations

“Five plus three equals”
Static text

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“Help”
Button
When the App Is Inaccessible

VoiceOver

Element locations

"Main Menu" Button

"Addition" Heading

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"Help" Button
When the App Is Inaccessible

VoiceOver

Element traits
When the App Is Inaccessible

VoiceOver

Element traits

“Main Menu” Button

“Addition” Heading

“One”   “Four”

“Eight”  “Nine”

“Help” Button
When the App Is Inaccessible

VoiceOver

Element labels

“Main Menu” Button

“Addition” Heading

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“Eight”

“Nine”

“Help” Button
When the App Is Inaccessible

Unusable by VoiceOver user
Added Benefit of Accessibility

"Main Menu" Button

"Addition" Heading

"One" "Four"

"Eight" "Nine"

Button
Added Benefit of Accessibility

“Five plus three equals”
Static text

“One” Button
“Four” Button
“Eight” Button
“Nine” Button
“Help” Button

“Main Menu” Button
“Addition” Heading
Added Benefit of Accessibility

Makes your app testable via Xcode UI testing
Auditing for Accessibility

“Main Menu” Button

“Addition” Heading

“One” “Four”

“Eight” “Nine”

Button
Auditing for Accessibility
Using assistive technologies

Mirrors actual user experience
Can catch usability issues
Auditing for Accessibility
Using the new Accessibility Inspector
Introducing the New Accessibility Inspector
Introducing the New Accessibility Inspector

Automatic accessibility audits
Introducing the New Accessibility Inspector

Automatic accessibility audits

Interactive inspection modes
Introducing the New Accessibility Inspector

Automatic accessibility audits

Interactive inspection modes

Accessibility settings live preview
Introducing the New Accessibility Inspector

Automatic accessibility audits
Interactive inspection modes
Accessibility settings live preview
Support for all platforms
Introducing the New Accessibility Inspector

macOS  iOS  watchOS  tvOS
The New Accessibility Inspector

Patti Hoa
Accessibility Engineer
The New Accessibility Inspector

Patti Hoa
Accessibility Engineer
Inspection

- Debug and analyze accessibility state
Inspection
- Debug and analyze accessibility state

Audit
- Find and report accessibility issues
Inspection
• Debug and analyze accessibility state

Audit
• Find and report accessibility issues

Settings
• Test impact of accessibility setting change
Audit
Accessibility Inspector

iPhone 6

Run audit
Demo
Audit

Patti Hoa
Accessibility Engineer
Manual Audit
Manual Audit Example
<table>
<thead>
<tr>
<th>Button Action</th>
<th>self.send()</th>
</tr>
</thead>
<tbody>
<tr>
<td>Button Icon</td>
<td>💌</td>
</tr>
<tr>
<td>Accessibility Label</td>
<td>Send mail</td>
</tr>
</tbody>
</table>
## Manual Audit Example

### Button Action
- **self.send()**

### Button Icon
![Paper Airplane Icon](paper-airplane-icon.png)

### Accessibility Label
- **Send mail**
## Manual Audit Example

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## Manual Audit Example

### Button Action
- `self.send()`
- `self.send()`

### Button Icon
- ![Paper Airplane Icon](image)
- ![Paper Airplane Icon](image)

### Accessibility Label
- Send mail
- Send mail
## Manual Audit Example

<table>
<thead>
<tr>
<th>Button Action</th>
<th>self.send()</th>
<th>self.delete()</th>
</tr>
</thead>
<tbody>
<tr>
<td>Button Icon</td>
<td>![Paper Airplane]</td>
<td>![Paper Airplane]</td>
</tr>
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<tr>
<td>Button Icon</td>
<td><img src="image" alt="Envelopes icon" /> <img src="image" alt="Trash can icon" /></td>
<td></td>
</tr>
<tr>
<td>Accessibility Label</td>
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</tbody>
</table>
### Perceived by Accessibility Clients

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<tr>
<td>Button Icon</td>
<td><img src="envelope.png" alt="Envelope" /></td>
<td><img src="trash.png" alt="Trash" /></td>
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<td>---------------</td>
<td>-------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Button Icon</td>
<td><img src="image" alt="Mail Icon" /></td>
<td><img src="image" alt="Trash Icon" /></td>
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</table>
Inspection
Inspection Feature
Inspection Feature

Inspect
Inspection Feature

Inspect

Accessibility Inspector

Quicklook
8

Basic
- Label: 8
- Value: <nil>
- Traits: Button

Actions
- Activate: Perform

Element

Hierarchy
Inspection Feature

Inspect

Accessibility Inspector

Quicklook

8

Basic

Label 8
Value <nil>
Traits Button

Actions

Activate Perform

Element

Hierarchy
Inspection Feature
Inspection Feature

Inspect

Accessibility Inspector

Quicklook

8

Basic

Label 8
Value <nil>
Traits Button

Actions

Activate Perform

Element

Hierarchy
Demo

Inspection

Patti Hoa
Accessibility Engineer
Settings
Common accessibility options to test in an App:

- Invert colors
- Reduce transparency
- Reduce motion

Font size

[Adjust slider]
Math Learner

Addition
Subtraction
Multiplication
Division
Math Learner

Addition

Subtraction

Multiplication

Division
Accessibility Inspector Features
Accessibility Inspector Features

Audit
Find and report accessibility issues
Accessibility Inspector Features

Audit
Find and report accessibility issues

Inspection
Debug and analyze accessibility state
Accessibility Inspector Features

Audit
Find and report accessibility issues

Inspection
Debug and analyze accessibility state

Settings
Test impact of accessibility setting change
Summary
Summary

Keep users of all abilities in mind
Summary

Keep users of all abilities in mind

Use the new Accessibility Inspector to identify potential accessibility issues
Summary

Keep users of all abilities in mind

Use the new Accessibility Inspector to identify potential accessibility issues

Easily inspect apps on all Apple platforms
Summary

Keep users of all abilities in mind

Use the new Accessibility Inspector to identify potential accessibility issues

Easily inspect apps on all Apple platforms

macOS  iOS  watchOS  tvOS
More Information

Feedback is Welcome
## Related Sessions

<table>
<thead>
<tr>
<th>Session</th>
<th>Location</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>What’s New in Accessibility</td>
<td>Pacific Heights</td>
<td>Tuesday 9:00AM</td>
</tr>
<tr>
<td>Inclusive App Design</td>
<td>Pacific Heights</td>
<td>Tuesday 10:00AM</td>
</tr>
<tr>
<td>Accessible Technology and Inclusive Design</td>
<td>Buena Vista Park</td>
<td>Wednesday 6:15PM</td>
</tr>
<tr>
<td>Labs</td>
<td>Location</td>
<td>Time</td>
</tr>
<tr>
<td>------------------------------------------</td>
<td>-------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Accessibility User Interface by Appointment Lab</td>
<td>User Interface Design Lab B</td>
<td>Wednesday 9:00AM</td>
</tr>
<tr>
<td>Accessibility and Speech Lab</td>
<td>Frameworks Lab C</td>
<td>Wednesday 2:30PM</td>
</tr>
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</table>