Debugging with Xcode 9

Session 404

Chris Miles, Xcode Engineering Manager
Breckin Loggins, Xcode Device Support Engineer
Sebastian Fischer, Xcode UI Engineer
Development: Unplugged

Chris Miles, Xcode Engineering Manager
Wireless Development
Wireless Development

Who is it for?
Wireless Development
Who is it for?

AR, VR, and camera app developers
Wireless Development
Who is it for?

AR, VR, and camera app developers

Motion-sensing and fitness app developers
Wireless Development
Who is it for?

AR, VR, and camera app developers
Motion-sensing and fitness app developers
Accessory makers
Wireless Development
Who is it for?

AR, VR, and camera app developers
Motion-sensing and fitness app developers
Accessory makers
Developer convenience
Wireless Development
Wireless Development
Wireless Development

Minimum requirements

iPhone, iPad, or iPod Touch running iOS 11

Apple TV running tvOS 11

macOS 10.12.4+
Wireless Development
Tools support

iOS/tvOS:
• Xcode
• Instruments
• Accessibility Inspector
• Console¹
• Configurator

¹Requires macOS 10.13
Wireless Development
Tools support

iOS/tvOS:
• Xcode
• Instruments
• Accessibility Inspector
• Console¹
• Configurator

tvOS only:
• Safari Web Inspector for TVMLKit
• QuickTime Screen Recording¹

¹Requires macOS 10.13
Device Connectivity
Device Connectivity
Device Connectivity
Device Connectivity
Wireless Development
Device pairing and workflow

Breckin Loggins, Xcode Device Support Engineer
Wireless Development

iOS device pairing
Wireless Development

iOS device pairing

![Image of iOS device pairing settings](image-url)
Wireless Development

iOS device pairing
Wireless Development

iOS device pairing
Wireless Development

iOS device pairing
## Wireless Development

### iOS device pairing

<table>
<thead>
<tr>
<th>PAIRED WATCHES</th>
<th>Model</th>
<th>watchOS</th>
<th>Identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Model</td>
<td>watchOS</td>
<td>Identifier</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>INSTALLED APPS</th>
<th>Name</th>
<th>Version</th>
<th>Identifier</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Version</td>
<td>Identifier</td>
<td></td>
</tr>
</tbody>
</table>

No apps installed
Remote App and Devices

Use the Remote app to control your Apple TV with your iPhone, iPad, iPod touch, or Apple Watch.

To learn more, go to support.apple.com/appletv/remote.
Wireless Development

tvOS device pairing

Enter the verification code displayed on Apple TV.

[Blank fields for verification code]
Wireless Development

tvOS device pairing

Enter the verification code displayed on Apple TV.

1 9 4 2 0 3

Connect
Wireless Development
tvOS device pairing
Wireless Development
Connection discovery

Most home and small business networks
• No configuration required
Wireless Development
Connection discovery

Most home and small business networks
• No configuration required
Wireless Development
Connection discovery

Most home and small business networks
• No configuration required

More complex networks
• Direct by IP address
Wireless Development
Connection discovery

Most home and small business networks
• No configuration required

More complex networks
• Direct by IP address
Wireless Development

Running your app

Wireless devices are always available to select

Xcode manages connections automatically
Wireless Development

Running your app

Wireless devices are always available to select

Xcode manages connections automatically
Demo

Wireless development
Breakpoint Workflow Enhancements

Chris Miles, Xcode Engineering Manager
Breakpoints

// Listen for updates to the player's controls.
SceneManager.gameInput.delegate = self

// Find all the buttons and set the initial focus.
bButtons = findAllButtonsInScene()
resetFocus()

override func didChangeSize(_ oldSize: CGSize) {
    super.didChangeSize(oldSize)

    updateCameraScale()
    overlay?.updateScale()

    // MARK: GameInputDelegate
Breakpoints
Breakpoints

```swift
// Listen for updates to the player's controls.
sceneManager.gameInput.delegate = self

// MARK: GameInputDelegate
```
Breakpoints
Breakpoints

Code completion
• Condition field
• Expression action fields
Breakpoints

Breakpoint options indicator
Breakpoints

Breakpoint options indicator
Breakpoints

Breakpoint options indicator

• Indicates an option is set
• Tooltip summarizes options
Breakpoints

Breakpoint navigator deep filtering
• Matches text in all options fields
View Controller Debugging
View Controller Debugging
View Controller Debugging
View Controller Debugging
View Controller Debugging
View Controller Debugging
View Controller Debugging
View Controller Debugging
View Controller Debugging
SpriteKit Debugging
SpriteKit Debugging

SpriteKit
- 2D graphics framework
- All Apple platforms
- Animation
- Physics engine
- Force fields
- Collision detection
- Lighting effects
SpriteKit Debugging
SpriteKit Debugging

NEW
SpriteKit Debugging
SpriteKit Debugging
SceneKit Debugging
SceneKit Debugging

SceneKit

• 3D graphics framework
• Animations
• Physics simulation
• Particle effects
• Physically-based rendering
SceneKit Debugging
SceneKit Debugging
SceneKit Debugging
SceneKit Debugging
SceneKit Debugging
SceneKit Debugging
View Debugging Enhancements
Minimum requirements

For view controllers, SpriteKit and SceneKit debugging
• iOS 11
• tvOS 11
• macOS High Sierra
Demo

View debugging enhancements

Sebastian Fischer, Xcode UI Engineer
Summary

Wireless development
Breakpoint workflow enhancements
View controller debugging
SpriteKit debugging
SceneKit debugging
More Information

https://developer.apple.com/wwdc17/404
<table>
<thead>
<tr>
<th>Related Sessions</th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finding Bugs Using Xcode Runtime Tools</td>
<td>Executive Ballroom</td>
<td>Wednesday 5:10PM</td>
</tr>
<tr>
<td>SceneKit: What's New</td>
<td>Grand Ballroom A</td>
<td>Wednesday 11:00AM</td>
</tr>
<tr>
<td>Understanding Undefined Behavior</td>
<td>Executive Ballroom</td>
<td>Thursday 9:00AM</td>
</tr>
<tr>
<td>Writing Energy Efficient Apps</td>
<td>Executive Ballroom</td>
<td>Friday 9:00AM</td>
</tr>
<tr>
<td>Going Beyond 2D with SpriteKit</td>
<td>Executive Ballroom</td>
<td>Friday 10:00AM</td>
</tr>
<tr>
<td>Labs</td>
<td>Location</td>
<td>Time</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Xcode Open Hours</td>
<td>Technology Lab K</td>
<td>Wed 9:00AM–12:00PM</td>
</tr>
<tr>
<td>Profiling and Debugging Lab</td>
<td>Technology Lab E</td>
<td>Wed 12:00PM–3:00PM</td>
</tr>
<tr>
<td>Xcode Open Hours</td>
<td>Technology Lab K</td>
<td>Thur 9:00AM–12:00PM</td>
</tr>
<tr>
<td>Performance Profiling and Runtime Analysis Tools Lab</td>
<td>Technology Lab K</td>
<td>Thur 1:00PM–4:10PM</td>
</tr>
<tr>
<td>Xcode Open Hours</td>
<td>Technology Lab K</td>
<td>Fri 1:50PM–4:00PM</td>
</tr>
</tbody>
</table>