What’s New in SpriteKit

Session 604

Tim Oriol
Norman Wang
Tyler Casella
What is SpriteKit?
What is SpriteKit?

2D graphics framework for games
Super easy to use
Lets you design your game in the most natural way possible
Automatic access to the latest and greatest
What is SpriteKit?
Supported across iOS and OS X
What is SpriteKit?

Xcode integrated live editor
New Additions
Viewport
Viewport
SKCameraNode

Represents the center of the viewport
SKScene property
Move the camera not the world
Static elements can be moved with the camera
SKCameraNode

SKCameraNode is a SKNode

- Actions
- Constraints
- Rotation
- Scale
SKCameraNode

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SKAudioNode

Positional audio

Leveraging AVAudioEngine
Position calculated via node position
Listener node property on SKScene
Create with filename or URL
Full control via `avAudioNode` property
SKAudioNode
SKAudioNode

Listener
SKAudioNode
SKAudioNode
SKAudioNode
References and Instancing

Leverage the NSCoding capability
Instances of SKAction and SKNode
Reusable components
Share across multiple projects
SKReferenceNode

Place reference nodes
Bundle based filename or any URL
Editor supported

SKReferenceNode

SKReferenceNode

SKReferenceNode

Serialized SpriteKit File
Named SKActions

Create in Xcode
Share and reuse action files

[SKAction actionNamed:]
[SKAction actionNamed:duration:]
New SKActions

Playback control actions

play, pause
changePlaybackRateTo: duration:
changeVolumeTo: duration:

Normal texture animation

animateWithNormalTextures:
New SKActions

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changePlaybackRateTo: duration:
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animateWithNormalTextures:
New SKActions

Playback control actions

`play`, `pause`
`changePlaybackRateTo: duration:`
`changeVolumeTo: duration:`

Normal texture animation

`animateWithNormalTextures:`
System Integration
Metal Backed

iOS and Mac
Metal backed on devices that support it
OpenGL on systems that don't
Zero action required for developers
All SpriteKit apps automatically upgraded
SKShaders automatically upgraded
We Speak Swift and Objective-C

- Nullability enhancements
- Objective-C generics
- Enhanced type safety
SceneKit

SKTransitions

Use SKTransitions in SceneKit
SceneKit Metal support
Automatic context matching
GameplayKit
Step up your game

Entity/Component systems
State machines
Agents and behaviors
Pathfinding
AI strategists
Random sources
Rule systems
GameplayKit
Pathfinding

Pathfinding operates on a navigation graph
Graphs are collections of nodes
Nodes are joined by connections
Each connection has an associated cost
GameplayKit
Pathfinding
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Pathfinding
GameplayKit

Pathfinding
GameplayKit

Automatic graph generation

If you’re using SpriteKit, we have provided a set of functions to automatically generate these from existing SKNodes. PhysicsBody, texture, or bounds.

```swift
[SKNode obstaclesFromNodeBounds: nodes]
[SKNode obstaclesFromNodePhysicsBodies: nodes]
[SKNode obstaclesFromSpriteTextures: nodes accuracy: accuracy]
```
GameplayKit

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SpriteKit Tools
Norman Wang
SpriteKit Tools

Introduction

Games rely on tools for iteration and scalability

• Game logic, animation, or art assets

Improve work flow and build game faster

Focus on building the gameplay
SpriteKit Tools

Texture atlas

- cave_destroyed.png
- big_tree_base.png
- cave_base.png
- big_tree_middle.png
- cave_top.png
- minionSplort.png
- big_tree_top.png
SpriteKit Tools

Texture atlas
SpriteKit Tools
Texture atlas
SpriteKit Tools
Texture atlas in Asset Catalog
SpriteKit Tools
Texture atlas with On Demand Resources
SpriteKit Tools
Texture atlas with On Demand Resources
SpriteKit Tools

Particle editor
SpriteKit Tools

Particle editor
Now, it's your turn! Create a variable, called `badGuy`, that adds the parts of the car, using `.addChild`.

```swift
let badGuy = carHood
badGuy.addChild(carRoof)
badGuy.addChild(carTrunk)
```
SpriteKit Tools
Xcode Quicklook
SpriteKit Tools

2D editor

Full visual editor for 2D games
No more compile and check
No code required
Visual layout
Live physics simulation
Live shader editing
SpriteKit Tools

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New features

More editor features this year

• Custom classes
• Camera
• Audio node
• Reference node

Increased collaboration and reusability
SpriteKit Tools

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Action editor

All new action editor
Timeline based
Realtime preview
2D and 3D support
Cinematic and Interactive animations
SpriteKit Tools

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All new action editor
Timeline based
Realtime preview
2D and 3D support
Cinematic and Interactive animations
Instances of SKAction and SKNode
Reusable components
Data-driven model
Share across multiple projects
Separate resource files
No code required
SpriteKit Tools

Referenced actions

Create once, reuse on multiple nodes, projects
Reference via editor or code
Leveraging the new **SKAction actionNamed:**
Build a custom library of actions
Build very complex actions
SpriteKit Tools

Referenced nodes

Create once, reuse on multiple nodes, projects
Reference via editor or code
Leveraging the new SKReferenceNode API
Build a custom library of nodes
Share between multiple scenes, and projects
SpriteKit Tools

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Build a custom library of nodes
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Demo
Building a SpriteKit game

Tyler Casella
Summary

Exciting year for SpriteKit developers

- Audio node, Camera node, Reference node, Reference action
- All new timeline based action editor
- Asset Catalog integration
- App Thinning
- On Demand Resources
- Metal integration
- GameplayKit integration
More Information

SpriteKit Documentation and Videos
http://developer.apple.com/spritekit

Apple Developer Forums
http://developer.apple.com/forums

Developer Technical Support
http://developer.apple.com/support/technical

General Inquiries
Allan Schaffer, Game Technologies Evangelist
aschaffer@apple.com
## Related Sessions

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<td>Going Social with ReplayKit and Game Center</td>
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<td>Wednesday 1:30PM</td>
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<td>Enhancements to SceneKit</td>
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<td>Introducing GameplayKit</td>
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<td>Deeper into GameplayKit with DemoBots</td>
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## Related Labs

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