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# Performance analysis

Measure and improve your app's responsiveness.

## Overview

Use Instruments to detect hangs and hitches in your app, and to analyze long view body updates and frequently occurring SwiftUI updates that can contribute to hangs and hitches.

## Topics

### Essentials

#### Understanding user interface responsiveness

Make your app more responsive by examining the event-handling and rendering loop.

#### Understanding hangs in your app

Determine the cause for delays in user interactions by examining the main thread and the main run loop.

#### Understanding hitches in your app

Determine the cause of interruptions in motion by examining the render loop.

## Analyzing SwiftUI performance

#### Understanding and improving SwiftUI performance

Identify and address long-running view updates, and reduce the frequency of updates.

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# See Also

## Tool support

- ☰ **Previews in Xcode**  
Generate dynamic, interactive previews of your custom views.
- ☰ **Xcode library customization**  
Expose custom views and modifiers in the Xcode library.