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Preparing widgets for additional platforms, contexts, and appearances

Create widgets that support additional platforms and adapt to their context.

Overview

Widgets change their appearance to best fit their context. For example, widgets on the Home Screen, Today View, and on Mac use accented colors and a clear glass presentation with a specific tint color, or they appear in a full color rendering. In CarPlay, small widgets appear scaled up and in full color, while Lock Screen widgets and WidgetKit complications use more restrained colors because they're smaller, always visible, and support tinted modes for each platform. Because all widgets appear in more than one context, make sure your widgets and their SwiftUI views support all applicable rendering modes.

WidgetKit uses three different rendering modes:

accented

Divides the widget's view hierarchy into an accent group and a primary group, and then applies a solid color to each group. Use the `widgetAccentable(_:)` view modifier to group views into the accent group. To learn more about using the accented rendering mode and making your widget fit the system's look across Apple platforms, refer to [Optimizing your widget for accented rendering mode and Liquid Glass](#).

vibrant

Desaturates text, images, and gauges into monochrome and creates a vibrant effect by coloring your content appropriately for the Lock Screen background or a macOS desktop. Note that people can also color the Lock Screen to a colored tint and WidgetKit uses a red tint for widgets that appear on iPhone in StandBy in low-light conditions.

fullColor

Doesn't change the color of your complication's views in this rendering mode. Use gradients and full-color images, text, and gauges.

The following table shows the rendering modes for each widget you need to support:

Widget size	fullColor	accented	vibrant
WidgetFamily.systemSmall	Yes	Yes	Yes
WidgetFamily.systemMedium	Yes	Yes	Yes
WidgetFamily.systemLarge	Yes	Yes	Yes
WidgetFamily.systemExtraLarge	Yes	Yes	Yes
WidgetFamily.systemExtraLargePortrait	Yes	Yes	Yes
WidgetFamily.accessoryCircular	No	Yes	Yes
WidgetFamily.accessoryCorner	No	Yes	Yes
WidgetFamily.accessoryRectangular	Yes	Yes	Yes
WidgetFamily.accessoryInline	No	Yes	Yes

Note

For design guidance, see [Human Interface Guidelines > Complications](#) and [Human Interface Guidelines > Widgets](#).

In your code, read the `widgetRenderingMode` environment variable to create SwiftUI views for each applicable rendering mode, as shown in the following example:

```
// ...

@Environment(\.widgetRenderingMode) var renderingMode

var body: some View {
    ZStack {
        switch renderingMode {
        case .fullColor:
            // Create views for full-color widgets and watch complications.

        case .accented:
            // Create views and group applicable views in the accented group.
            VStack {
                // ...
            }
            .widgetAccentable()
            // Additional views that you don't group in the accented group.
        case .vibrant:
            // Create views for Lock Screen widgets on iPhone and iPad.
        }
    }
}
```

Make your background views removable

In many contexts, the system removes your widget's background views to match the system appearance. To control which components of your widget the system removes, group them into background containers and mark them as removable. For more information, refer to [Displaying the right widget background](#).

Support Always On

If you create accessory widgets and WidgetKit complications, make sure to use SwiftUI's `isLuminanceReduced` environment variable to detect Always On and color your views to look great with reduced luminance. For design guidance, see [Human Interface Guidelines > Always On](#) and [Human Interface Guidelines > Widgets](#).

Update your small widget to support StandBy and CarPlay

On iPhone in StandBy, the Lock Screen shows two widgets side by side on a dark background. In CarPlay, widgets appear on a dedicated Widgets screen. For both appearances, WidgetKit uses your `WidgetFamily.systemSmall` widget and scales it to fit available space. For more information about supporting StandBy and CarPlay, refer to [Adding StandBy and CarPlay support to your widget](#).

Indicate that a widget might not fit a specific context

By default, the system suggests widgets in many contexts, and people can choose widgets in the widget gallery to personalize their system experience. However, a widget might not be a good fit for a specific context. For example, a widget that relies on high-resolution photos and background colors for its functionality may not work well on the Lock Screen, where the system applies a vibrant treatment to the widget. To indicate that a widget doesn't work well in a specific context, use `disfavoredLocations(_:for:)` and provide the applicable `WidgetLocation`. As a result, the widget appears in the widget gallery's "Other" section for the disfavored location.

Verify font sizes in macOS

When people place an iPhone widget on a Mac desktop, the system renders it using iOS font metrics. However, a native Mac app's widgets use macOS font sizing. If you're sharing code across your iOS and macOS targets in your Xcode project, make sure to verify font sizing in macOS and adjust it for macOS as needed.

See Also

Widget creation

Creating a widget extension

Display your app's content in a convenient, informative widget on various devices.

Developing a WidgetKit strategy

Explore features, tasks, related frameworks, and constraints as you make a plan to implement widgets, controls, watch complications, and Live Activities.

Emoji Rangers: Supporting Live Activities, interactivity, and animations

Offer Live Activities, controls, animate data updates, and add interactivity to widgets.

@MainActor @preconcurrency protocol Widget

The configuration and content of a widget to display on the Home screen or in Notification Center.

enum WidgetFamily

Values that define the widget's size and shape.

struct StaticConfiguration

An object describing the content of a widget that has no user-configurable options.

Platforms

- iOS
- iPadOS
- macOS
- tvOS
- visionOS
- watchOS
- Tools
- Swift
- SwiftUI
- Swift Playground
- TestFlight
- Xcode
- Xcode Cloud
- SF Symbols

Topics & Technologies

- Accessibility
- Accessories
- App Extension
- App Store
- Audio & Video
- Augmented Reality
- Design
- Distribution
- Education
- Fonts
- Games
- Health & Fitness
- In-App Purchase
- Localization
- Maps & Location
- Machine Learning & AI
- Open Source
- Security
- Safari & Web

Resources

- Documentation
- Tutorials
- Downloads
- Forums
- Videos
- Support
- Support Articles
- Contact Us
- Bug Reporting
- System Status
- Account
- Apple Developer
- App Store Connect
- Certificates, IDs, & Profiles
- Feedback Assistant

Programs

- Apple Developer Program
- Apple Developer Enterprise Program
- App Store Small Business Program
- MFi Program
- News Partner Program
- Video Partner Program
- Security Bounty Program
- Security Research Device Program
- Events
- Meet with Apple
- Apple Developer Centers
- App Store Awards
- Apple Design Awards
- Apple Developer Academies
- WWDC