

#WWDC19

# Exploring Tinted Graphic Complications

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MON 3



10:09

UVI 5.0 MODERATE













# Tinted Gauges

Displayed in a solid color

- System determines tint color





# Tinted Gauges

Displayed in a solid color

- System determines tint color





# Tinted Text

Displayed in a single color





# Tinted Text

Displayed in a single color





# Tinted Images

Desaturated by default

New API in `CLKFullColorImageProvider` to provide alternate images





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Desaturated by default

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# Data Providers

Manage the data you display in a complication

Text, images and gauges

- **Examples:** `CLKSimpleTextProvider`, `CLKTimeIntervalTextProvider`, `CLKFullColorImageProvider`, `CLKSimpleGaugeProvider`, ...



```
// CLKFullColorImageProvider

open class CLKFullColorImageProvider : NSObject, NSCopying {

    open var image: UIImage

    open var accessibilityLabel: String?

}
```



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open class CLKFullColorImageProvider : NSObject, NSCopying {

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```
// CLKFullColorImageProvider
```

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open class CLKFullColorImageProvider : NSObject, NSCopying {
```

```
    open var image: UIImage
```

```
    open var accessibilityLabel: String?
```

```
}
```





NEW

```
// Alternate image for tinted contexts

open class CLKFullColorImageProvider : NSObject, NSCopying {

    open var image: UIImage

    open var accessibilityLabel: String?

    open var tintedImageProvider: CLKImageProvider?

}
```



```
// CLKImageProvider

open class CLKImageProvider : NSObject, NSCopying {

    open var onePieceImage: UIImage

    open var tintColor: UIColor?

    open var twoPieceImageBackground: UIImage?

    open var twoPieceImageForeground: UIImage?

    open var accessibilityLabel: String?

}
```

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// CLKImageProvider

open class CLKImageProvider : NSObject, NSCopying {

    open var onePieceImage: UIImage

    open var tintColor: UIColor?

    open var twoPieceImageBackground: UIImage?

    open var twoPieceImageForeground: UIImage?

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}
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open class CLKImageProvider : NSObject, NSCopying {

    open var onePieceImage: UIImage

    open var tintColor: UIColor?

    open var twoPieceImageBackground: UIImage?

    open var twoPieceImageForeground: UIImage?

    open var accessibilityLabel: String?

}
```

```
// CLKImageProvider

open class CLKImageProvider : NSObject, NSCopying {

    open var onePieceImage: UIImage

    open var tintColor: UIColor?

    open var twoPieceImageBackground: UIImage?

    open var twoPieceImageForeground: UIImage?

    open var accessibilityLabel: String?

}
```











```
// Tinted Image - Default Behavior
```

```
var fullColorImage = UIImage(named: "FullColorImage")!
```

```
var imageProvider = CLKFullColorImageProvider(fullColorImage: fullColorImage)
```

```
var imageProviderAlt = CLKFullColorImageProvider(fullColorImage: fullColorImage,  
tintedImageProvider: nil)
```





```
// Tinted Image - One-Piece Image

var fullColorImage = UIImage(named: "FullColorImage")!

var onePieceImage = UIImage(named: "MonochromeImage")!
var tintedImageProvider = CLKImageProvider(onePieceImage: onePieceImage)

var imageProvider = CLKFullColorImageProvider(fullColorImage: fullColorImage,
tintedImageProvider: tintedImageProvider)
```

```
// Tinted Image - One-Piece Image

var fullColorImage = UIImage(named: "FullColorImage")!

var tintedImageProvider = CLKImageProvider(onePieceImage: fullColorImage)

var imageProvider = CLKFullColorImageProvider(fullColorImage: fullColorImage,
tintedImageProvider: tintedImageProvider)
```





```
// Tinted Image - Two-Piece Image

var fullColorImage = UIImage(named: "FullColorImage")!

var onePieceImage = UIImage(named: "MonochromeImage")!
var backgroundImage = UIImage(named: "BackgroundImage")!
var foregroundImage = UIImage(named: "ForegroundImage")!
var tintedImageProvider = CLKImageProvider(onePieceImage: onePieceImage,
twoPieceBackgroundImage: backgroundImage, twoPieceForegroundImage: foregroundImage)

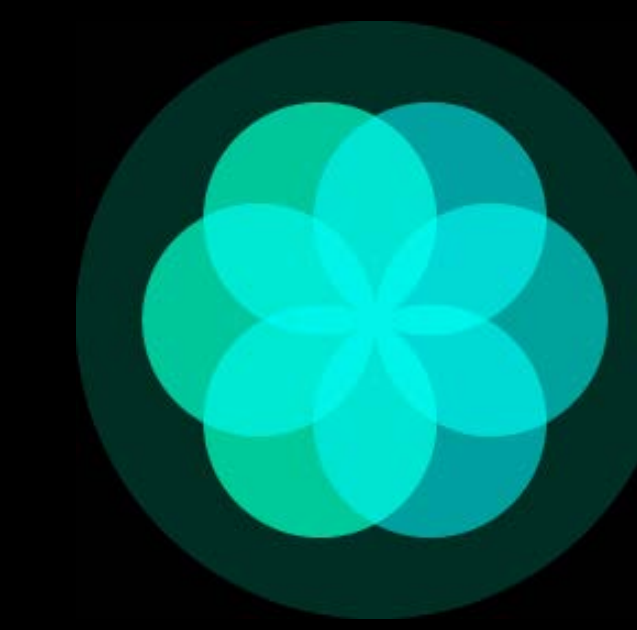
var imageProvider = CLKFullColorImageProvider(fullColorImage: fullColorImage,
tintedImageProvider: tintedImageProvider)
```





CUP  
10:09AM, +0HRS

8:00AM YOGA • FLOW STUDIO  
FRI  
23



### Water Reminders

32 oz. consumed

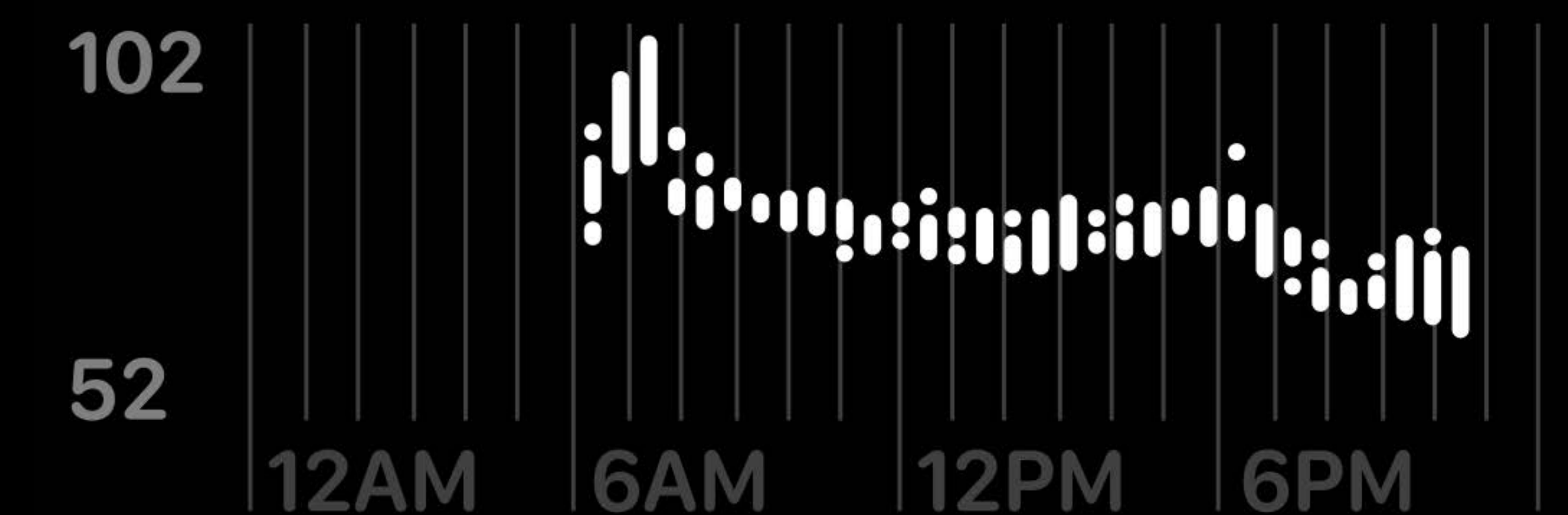
4 day streak! Wooahoo!

### Water Reminder

32 oz. consumed



68 BPM, 2 MINS AGO







CUP  
10:09AM, +0HRS

8:00AM YOGA • FLOW STUDIO  
FRI  
23



**Water Reminders**  
32 oz. consumed  
4 day streak! Wooahoo!

**Water Reminder**  
32 oz. consumed





# Key Takeaways

Complications are altered in tinted contexts

System always determines color

New API to provide alternate template images

# More Information

[developer.apple.com/wwdc19/253](https://developer.apple.com/wwdc19/253)

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Developing Complications for Apple Watch Series 4

Tech Talks 2018

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Creating Complications with ClockKit

WWDC 2015

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