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Protocol

MultiplePlanePixelFormat

A pixel format that contains multiple homogeneous planes represented by multiple underlying `vImage` buffers.

iOS 16.0+ | iPadOS 16.0+ | Mac Catalyst | macOS 13.0+ | tvOS 16.0+ | visionOS | watchOS 9.0+

```
protocol MultiplePlanePixelFormat : PixelFormat
```

Overview

Use multiple-plane pixel buffers to store image data as discrete planar buffers that represent individual channels.

For example, the following code deinterleaves an interleaved buffer and applies different gamma adjustments to different color channels. The code calls `PixelBuffer.convert(to:)` to reinterleave the image data and generates a `CGImage` instance of the final output.

```
let srcImage = imageLiteral(resourceName: "...").cgImage(  
    forProposedRect: nil,  
    context: nil,  
    hints: nil)!  
  
var cgImageFormat = vImage_CGImageFormat(  
    bitsPerComponent: 8,  
    bitsPerPixel: 8 * 3,  
    colorSpace: CGColorSpaceCreateDeviceRGB(),  
    bitmapInfo: CGBitmapInfo(rawValue: CGImageAlphaInfo.none.rawValue))!  
  
let interleaved = try vImage.PixelBuffer(  
    cgImage: srcImage,
```

```
cgImageFormat: &cgImageFormat,  
pixelFormat: vImage.PixelBuffer<vImage.Planar8x3.self>  
  
let multiplane = vImage.PixelBuffer<vImage.Planar8x3>(interleavedBuffer: interleaved  
  
multiplane.withUnsafePixelBuffers { pixelBuffers in  
  
    // Apply gamma to red channel.  
    pixelBuffers[0].applyGamma(.nineOverElevenHalfPrecision,  
                             destination: pixelBuffers[0])  
  
    // Apply gamma to green channel.  
    pixelBuffers[1].applyGamma(.fiveOverElevenHalfPrecision,  
                             destination: pixelBuffers[1])  
}  
  
multiplane.convert(to: interleaved)  
let outputImage = interleaved
```

Topics

Associated Types

associatedtype PlanarPixelFormat : StaticPixelFormat
Required

Type Properties

static var bitCountPerPlanarPixel: Int
Required

static var planeCount: Int
Required

Relationships

Inherits From

PixelFormat

Conforming Types

```
vImage.Planar8x2  
vImage.Planar8x3  
vImage.Planar8x4  
vImage.PlanarFx2  
vImage.PlanarFx3  
vImage.PlanarFx4
```

See Also

Protocols

```
protocol InitializableFromCGImage
```

A pixel format that supports initialization from a Core Graphics image.

```
protocol PixelFormat
```

A pixel buffer pixel format.

```
protocol SinglePlanePixelFormat
```

A pixel format that contains a single underlying vImage buffer.

```
protocol StaticPixelFormat
```

A pixel format that's known at compile time.