
NSGraphicsContext Class Reference

Graphics & Animation



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Document Revision History 27

NSGraphicsContext Class Reference

Inherits from	NSObject
Conforms to	NSObject (NSObject)
Framework	/System/Library/Frameworks/AppKit.framework
Availability	Available in Mac OS X v10.0 and later.
Companion guide	Cocoa Drawing Guide
Declared in	NSGraphics.h NSGraphicsContext.h
Related sample code	FunHouse Quartz EB QuickLookSketch Reducer Sketch-112

Overview

The `NSGraphicsContext` class is the programmatic interface to objects that represent graphics contexts. A context can be thought of as a destination to which drawing and graphics state operations are sent for execution. Each graphics context contains its own graphics environment and state.

The `NSGraphicsContext` class is an abstract superclass for destination-specific graphics contexts. You obtain instances of concrete subclasses with the class methods [currentContext](#) (page 8), [graphicsContextWithAttributes:](#) (page 9), [graphicsContextWithBitmapImageRep:](#) (page 9), [graphicsContextWithGraphicsPort:flipped:](#) (page 10), and [graphicsContextWithWindow:](#) (page 10).

At any time there is the notion of the current context. The current context for the current thread may be set using [setCurrentContext:](#) (page 12).

Graphics contexts are maintained on a stack. You push a graphics context onto the stack by sending it a [saveGraphicsState](#) (page 17) message, and pop it off the stack by sending it a [restoreGraphicsState](#) (page 17) message. By sending [restoreGraphicsState](#) (page 17) to an `NSGraphicsContext` object you remove it from the stack, and the next graphics context on the stack becomes the current graphics context.

Tasks

Creating a Graphics Context

- + [graphicsContextWithAttributes:](#) (page 9)
Instantiates and returns an instance of `NSGraphicsContext` using the specified attributes.
- + [graphicsContextWithBitmapImageRep:](#) (page 9)
Instantiates and returns a new graphics context using the supplied `NSBitmapImageRep` object as the context destination.
- + [graphicsContextWithGraphicsPort:flipped:](#) (page 10)
Instantiates and returns a new graphics context from the given graphics port.
- + [graphicsContextWithWindow:](#) (page 10)
Creates and returns a new graphics context for drawing into a window.

Managing the Current Context

- + [currentContext](#) (page 8)
Returns the current graphics context of the current thread.
- + [setCurrentContext:](#) (page 12)
Sets the current graphics context of the current thread.
- [graphicsPort](#) (page 15)
Returns the low-level, platform-specific graphics context represented by the receiver.

Managing the Graphics State

- + [setGraphicsState:](#) (page 12)
Makes the graphics context of the specified graphics state current, and resets graphics state.
- + [restoreGraphicsState](#) (page 11)
Pops a graphics context from the per-thread stack, makes it current, and sends the context a [restoreGraphicsState](#) (page 17) message.
- [restoreGraphicsState](#) (page 17)
Removes the receiver's graphics state from the top of the graphics state stack and makes the next graphics state the current graphics state.
- + [saveGraphicsState](#) (page 11)
Saves the graphics state of the current graphics context.
- [saveGraphicsState](#) (page 17)
Saves the current graphics state and creates a new graphics state on the top of the stack.

Testing the Drawing Destination

- + [currentContextDrawingToScreen](#) (page 8)
Returns a Boolean value that indicates whether the current context is drawing to the screen.

- [isDrawingToScreen](#) (page 16)
Returns a Boolean value that indicates whether the drawing destination is the screen.

Getting Information About a Context

- [attributes](#) (page 13)
Returns the receiver's attributes.
- [isFlipped](#) (page 16)
Returns a Boolean value that indicates the receiver's flipped state.

Flushing Graphics to the Context

- [flushGraphics](#) (page 15)
Forces any buffered operations or data to be sent to the receiver's destination.

Managing the Focus Stack

- [focusStack](#) (page 25) **Available in Mac OS X v10.0 through Mac OS X v10.5**
Returns the object used by the context to track the hierarchy of views with locked focus.
- [setFocusStack:](#) (page 25) **Available in Mac OS X v10.0 through Mac OS X v10.5**
Sets the object used by the receiver to track the hierarchy of views with locked focus.

Configuring Rendering Options

- [setCompositingOperation:](#) (page 18)
Sets the receiver's global compositing operation.
- [compositingOperation](#) (page 14)
Returns the receiver's global compositing operation setting.
- [setImageInterpolation:](#) (page 19)
Sets the receiver's interpolation behavior.
- [imageInterpolation](#) (page 15)
Returns a constant that specifies the receiver's interpolation behavior.
- [setShouldAntialias:](#) (page 20)
Sets whether the receiver should use antialiasing.
- [shouldAntialias](#) (page 20)
Returns a Boolean value that indicates whether the receiver uses antialiasing.
- [setPatternPhase:](#) (page 19)
Sets the amount to offset the pattern color when filling the receiver.
- [patternPhase](#) (page 17)
Returns the amount to offset the pattern color when filling the receiver.

Getting the Core Image Context

- [CIContext](#) (page 13)
Returns a `CIContext` object that you can use to render into the receiver.

Managing the Color Rendering Intent

- [colorRenderingIntent](#) (page 14)
Returns the current rendering intent in the receiver's graphics state.
- [setColorRenderingIntent:](#) (page 18)
Sets the rendering intent in the receiver's graphics state.

Class Methods

currentContext

Returns the current graphics context of the current thread.

```
+ (NSGraphicsContext *)currentContext
```

Return Value

The current graphics context of the current thread.

Discussion

Returns an instance of a concrete subclass of `NSGraphicsContext`.

Availability

Available in Mac OS X v10.0 and later.

Related Sample Code

FunHouse
Quartz EB
QuickLookSketch
Sketch+Accessibility
Sketch-112

Declared In

`NSGraphicsContext.h`

currentContextDrawingToScreen

Returns a Boolean value that indicates whether the current context is drawing to the screen.

```
+ (BOOL)currentContextDrawingToScreen
```

Return Value

YES if the current context is drawing to the screen, otherwise NO.

Discussion

This convenience method is equivalent to sending `isDrawingToScreen` (page 16) to the result of `currentContext` (page 8).

Availability

Available in Mac OS X v10.0 and later.

Declared In

`NSGraphicsContext.h`

graphicsContextWithAttributes:

Instantiates and returns an instance of `NSGraphicsContext` using the specified attributes.

```
+ (NSGraphicsContext *)graphicsContextWithAttributes:(NSDictionary *)attributes
```

Parameters

attributes

A dictionary of values associated with the keys described in “Attribute dictionary keys” (page 21). The attributes specify such things as representation format and destination.

Return Value

A new `NSGraphicsContext` object or `nil` if the object could not be created.

Discussion

Use this method to create a graphics context for a window or bitmap destination. If you want to create a graphics context for a PDF or PostScript destination, do not use this method; instead, use the `NSPrintOperation` class to set up the printing environment needed to generate that type of information.

Availability

Available in Mac OS X v10.0 and later.

Declared In

`NSGraphicsContext.h`

graphicsContextWithBitmapImageRep:

Instantiates and returns a new graphics context using the supplied `NSBitmapImageRep` object as the context destination.

```
+ (NSGraphicsContext *)graphicsContextWithBitmapImageRep:(NSBitmapImageRep *)bitmapRep
```

Parameters

bitmapRep

The `NSBitmapImageRep` object to use as the destination.

Return Value

The created `NSGraphicsContext` object or `nil` if the object could not be created.

Discussion

This method accepts only single plane `NSBitmapImageRep` instances. It is the equivalent of using `graphicsContextWithAttributes:` (page 9) and passing *bitmapRep* as the value for the dictionary’s `NSGraphicsContextDestinationAttributeName` key.

Availability

Available in Mac OS X v10.4 and later.

See Also

+ [graphicsContextWithAttributes:](#) (page 9)

Related Sample Code

AnimatedTableView

Reducer

Declared In

NSGraphicsContext.h

graphicsContextWithGraphicsPort:flipped:

Instantiates and returns a new graphics context from the given graphics port.

```
+ (NSGraphicsContext *)graphicsContextWithGraphicsPort:(void *)graphicsPort
  flipped:(BOOL)initialFlippedState
```

Parameters

graphicsPort

The graphics port used to create the graphics-context object. Typically *graphicsPort* is a `CGContextRef` (opaque type) object.

initialFlippedState

Specifies the receiver's initial flipped state. This is the value returned by `isFlipped` (page 16) when no view has focus.

Return Value

The created `NSGraphicsContext` object or `nil` if the object could not be created.

Availability

Available in Mac OS X v10.4 and later.

Related Sample Code

CIAnnotation

CIVideoDemoGL

FunHouse

iChatTheater

QuickLookSketch

Declared In

NSGraphicsContext.h

graphicsContextWithWindow:

Creates and returns a new graphics context for drawing into a window.

```
+ (NSGraphicsContext *)graphicsContextWithWindow:(NSWindow *)aWindow
```

Parameters*aWindow*

The window object representing the window to use for drawing.

Return Value

The created `NSGraphicsContext` object or `nil` if the object could not be created.

Availability

Available in Mac OS X v10.0 and later.

Related Sample Code

JAWTExample

Declared In

`NSGraphicsContext.h`

restoreGraphicsState

Pops a graphics context from the per-thread stack, makes it current, and sends the context a [restoreGraphicsState](#) (page 17) message.

```
+ (void)restoreGraphicsState
```

Availability

Available in Mac OS X v10.0 and later.

Related Sample Code

QuickLookSketch

Reducer

Sketch+Accessibility

Sketch-112

TrackBall

Declared In

`NSGraphicsContext.h`

saveGraphicsState

Saves the graphics state of the current graphics context.

```
+ (void)saveGraphicsState
```

Discussion

This method sends the current graphics context a [saveGraphicsState](#) (page 17) message and pushes the context onto the per-thread stack.

Availability

Available in Mac OS X v10.0 and later.

Related Sample Code

QuickLookSketch

Reducer

Sketch+Accessibility

Sketch-112

TrackBall

Declared In

NSGraphicsContext.h

setCurrentContext:

Sets the current graphics context of the current thread.

```
+ (void)setCurrentContext:(NSGraphicsContext *)context
```

Parameters

context

The graphics-context object to set as the current one. This must be an instance of a concrete subclass of NSGraphicsContext.

Availability

Available in Mac OS X v10.0 and later.

Related Sample Code

CIAnnotation

CIVideoDemoGL

FunHouse

iChatTheater

QuickLookSketch

Declared In

NSGraphicsContext.h

setGraphicsState:

Makes the graphics context of the specified graphics state current, and resets graphics state.

```
+ (void)setGraphicsState:(NSInteger)graphicsState
```

Discussion

The *graphicsState* identifier must be created in the calling thread.

Availability

Available in Mac OS X v10.0 and later.

Declared In

NSGraphicsContext.h

Instance Methods

attributes

Returns the receiver's attributes.

- (NSDictionary *)attributes

Return Value

The receiver's attributes, if any.

Discussion

Screen-based graphics contexts do not store attributes, even if you create them using [graphicsContextWithAttributes:](#) (page 9).

Availability

Available in Mac OS X v10.0 and later.

Declared In

NSGraphicsContext.h

CImageContext

Returns a `CImageContext` object that you can use to render into the receiver.

- (CImageContext *)CImageContext

Return Value

A `CImageContext` object or `nil` if the object could not be created.

Discussion

The `CImageContext` object is created on demand and remains in existence for the lifetime of its owning `NSGraphicsContext` object. A `CImageContext` object is an evaluation context for rendering a `CIImage` object through Quartz 2D or OpenGL. You use `CImageContext` objects in conjunction with `CIFilter`, `CIImage`, `CIVector`, and `CIColor` objects to take advantage of the built-in Core Image filters when processing images.

For more on `CImageContext` objects and related Core Image objects, see *Core Image Programming Guide*.

Availability

Available in Mac OS X v10.4 and later.

Related Sample Code

AnimatedTableView

CIExposureSample

CIHazeFilterSample

CITransitionSelectorSample

FunHouse

Declared In

NSGraphicsContext.h

colorRenderingIntent

Returns the current rendering intent in the receiver's graphics state.

- (NSColorRenderingIntent)colorRenderingIntent

Return Value

An “[Creating a Graphics Context](#)” (page 6) value that specifies the rendering intent currently used by the receiver. For possible values see “[Color Rendering Intent Constants](#)” (page 23).

Discussion

The rendering intent specifies how Cocoa should handle colors that are not located within the gamut of the destination color space of a graphics context.

Availability

Available in Mac OS X v10.5 and later.

See Also

- [setColorRenderingIntent:](#) (page 18)

Declared In

NSGraphicsContext.h

compositingOperation

Returns the receiver's global compositing operation setting.

- (NSCompositingOperation)compositingOperation

Return Value

The receiver's global compositing operation setting. See `NSCompositingOperation` for valid constants.

Discussion

The compositing operation is a global attribute of the graphics context and affects drawing operations that do not take an explicit compositing operation parameter. For methods that do take an explicit compositing operation parameter, the value of that parameter supersedes the global value.

The compositing operations are related to (but different from) the blend mode settings used in Quartz. Only the default compositing operation (`NSCompositeCopy`) is supported for PDF or PostScript content.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [setCompositingOperation:](#) (page 18)

Related Sample Code

ImageMap

ImageMapExample

Declared In

NSGraphicsContext.h

flushGraphics

Forces any buffered operations or data to be sent to the receiver's destination.

```
- (void)flushGraphics
```

Discussion

Graphics contexts use buffers to queue pending operations but for efficiency reasons may not always empty those buffers immediately. This method forces the buffers to be emptied.

Availability

Available in Mac OS X v10.0 and later.

Related Sample Code

CocoaAUHost

iChatTheater

Declared In

NSGraphicsContext.h

graphicsPort

Returns the low-level, platform-specific graphics context represented by the receiver.

```
- (void *)graphicsPort
```

Discussion

In Mac OS X, this is the Core Graphics context, a `CGContextRef` object (opaque type).

Availability

Available in Mac OS X v10.0 and later.

Related Sample Code

CIAnnotation

FunHouse

ImageApp

MyPhoto

Quartz EB

Declared In

NSGraphicsContext.h

imageInterpolation

Returns a constant that specifies the receiver's interpolation behavior.

```
- (NSImageInterpolation)imageInterpolation
```

Return Value

The receiver's interpolation (image smoothing) behavior.

Discussion

The `NSImageInterpolation` constants are described in [NSImageInterpolation](#) (page 22).

Availability

Available in Mac OS X v10.0 and later.

See Also

- [setImageInterpolation:](#) (page 19)

Declared In

NSGraphicsContext.h

isDrawingToScreen

Returns a Boolean value that indicates whether the drawing destination is the screen.

- (BOOL)isDrawingToScreen

Return Value

YES if the drawing destination is the screen, otherwise NO.

Discussion

A return value of NO may mean that the drawing destination is a printer, but the destination may also be a PDF or EPS file. If this method returns NO, you can call [attributes](#) (page 13) to see if additional information is available about the drawing destination.

Availability

Available in Mac OS X v10.0 and later.

Declared In

NSGraphicsContext.h

isFlipped

Returns a Boolean value that indicates the receiver's flipped state.

- (BOOL)isFlipped

Return Value

YES if the receiver is flipped, otherwise NO.

Discussion

The state is determined by sending `isFlipped` to the receiver's view that has focus. If no view has focus, returns NO unless the receiver is instantiated using [graphicsContextWithGraphicsPort:flipped:](#) (page 10) specifying YES as the flipped parameter.

Availability

Available in Mac OS X v10.4 and later.

See Also

+ [graphicsContextWithGraphicsPort:flipped:](#) (page 10)

Declared In

NSGraphicsContext.h

patternPhase

Returns the amount to offset the pattern color when filling the receiver.

- (NSPoint)patternPhase

Return Value

The amount to offset the pattern color when filling the receiver.

Discussion

The pattern phase is a translation (width, height) applied before a pattern is drawn in the current context and is part of the saved graphics state of the context. The default pattern phase is (0,0). Setting the pattern phase has the effect of temporarily changing the pattern matrix of any pattern you decide to draw. For example, setting the pattern phase to (2,3) has the effect of moving the start of pattern cell tiling to the point (2,3) in default user space.

Availability

Available in Mac OS X v10.2 and later.

See Also

- [setPatternPhase:](#) (page 19)

Declared In

NSGraphicsContext.h

restoreGraphicsState

Removes the receiver's graphics state from the top of the graphics state stack and makes the next graphics state the current graphics state.

- (void)restoreGraphicsState

Discussion

This method must have been preceded with a [saveGraphicsState](#) (page 17) message to add the graphics state to the stack. Invocations of `saveGraphicsState` and `restoreGraphicsState` methods may be nested.

Restoring the graphics state restores such attributes as the current drawing style, transformation matrix, color, and font of the original graphics state.

Availability

Available in Mac OS X v10.0 and later.

Declared In

NSGraphicsContext.h

saveGraphicsState

Saves the current graphics state and creates a new graphics state on the top of the stack.

- (void)saveGraphicsState

Discussion

The new graphics state is a copy of the previous state that can be modified to handle new drawing operations.

Saving the graphics state saves such attributes as the current drawing style, transformation matrix, color, and font. To set drawing style attributes, use the methods of `NSBezierPath`. Other attributes are accessed through appropriate objects such as `NSAffineTransform`, `NSColor`, and `NSFont`.

Availability

Available in Mac OS X v10.0 and later.

Declared In

`NSGraphicsContext.h`

setColorRenderingIntent:

Sets the rendering intent in the receiver's graphics state.

```
- (void)setColorRenderingIntent:(NSColorRenderingIntent)renderingIntent
```

Parameters

renderingIntent

An “[Creating a Graphics Context](#)” (page 6) value that specifies the rendering intent to be used. For possible values see “[NSColorRenderingIntent](#)” (page 23).

Discussion

The rendering intent specifies how Cocoa should handle colors that are not located within the gamut of the destination color space of a graphics context. If you do not explicitly set the rendering intent, and sampled images are being drawn, `NSGraphicsContext` uses perceptual rendering intent. Otherwise, `NSGraphicsContext` uses relative colorimetric rendering intent.

Availability

Available in Mac OS X v10.5 and later.

See Also

- [colorRenderingIntent](#) (page 14)

Declared In

`NSGraphicsContext.h`

setCompositingOperation:

Sets the receiver's global compositing operation.

```
- (void)setCompositingOperation:(NSCompositingOperation)operation
```

Parameters

operation

A constant that specifies a compositing operation. See `NSCompositingOperation` for valid constants.

Discussion

The compositing operation is a global attribute of the graphics context and affects drawing operations that do not take an explicit compositing operation parameter. For methods that do take an explicit compositing operation parameter, the value of that parameter supersedes the global value.

The compositing operations are related to (but different from) the blend mode settings used in Quartz. Only the default compositing operation (`NSCompositeCopy`) is supported when rendering PDF or PostScript content.

Availability

Available in Mac OS X v10.4 and later.

See Also

- [compositingOperation](#) (page 14)

Related Sample Code

ImageMap

ImageMapExample

Declared In

NSGraphicsContext.h

setImageInterpolation:

Sets the receiver's interpolation behavior.

- (void)setImageInterpolation:(NSImageInterpolation)*interpolation*

Parameters

interpolation

A constant specifying the image-interpolation behavior. The `NSImageInterpolation` constants are described in [NSImageInterpolation](#) (page 22).

Discussion

Note that this value is not part of the graphics state, so it cannot be reset using [restoreGraphicsState](#) (page 17).

Availability

Available in Mac OS X v10.0 and later.

See Also

- [imageInterpolation](#) (page 15)

Related Sample Code

WebKitDOMElementPlugIn

Declared In

NSGraphicsContext.h

setPatternPhase:

Sets the amount to offset the pattern color when filling the receiver.

- (void)setPatternPhase:(NSPoint)*phase*

Parameters

phase

A point specifying the offset.

Discussion

Use this method when you need to line up the pattern color with another pattern, such as the pattern in a superview.

The pattern phase is a translation (width, height) applied before a pattern is drawn in the current context and is part of the saved graphics state of the context. The default pattern phase is (0,0). Setting the pattern phase has the effect of temporarily changing the pattern matrix of any pattern you decide to draw. For example, setting the pattern phase to (2,3) has the effect of moving the start of pattern cell tiling to the point (2,3) in default user space.

Availability

Available in Mac OS X v10.2 and later.

See Also

- [patternPhase](#) (page 17)

Declared In

NSGraphicsContext.h

setShouldAntialias:

Sets whether the receiver should use antialiasing.

```
- (void)setShouldAntialias:(BOOL)antialias
```

Parameters

antialias

YES if the receiver should use antialiasing, otherwise NO.

Discussion

This value is part of the graphics state and is restored by [restoreGraphicsState](#) (page 17).

Availability

Available in Mac OS X v10.0 and later.

See Also

- [shouldAntialias](#) (page 20)

Related Sample Code

Cocoa OpenGL

Cropped Image

From A View to A Movie

From A View to A Picture

Declared In

NSGraphicsContext.h

shouldAntialias

Returns a Boolean value that indicates whether the receiver uses antialiasing.

```
- (BOOL)shouldAntialias
```

Return Value

YES if the receiver uses antialiasing, otherwise NO.

Availability

Available in Mac OS X v10.0 and later.

See Also

- [setShouldAntialias:](#) (page 20)

Declared In

NSGraphicsContext.h

Constants

Attribute dictionary keys

These constants are dictionary keys used by [graphicsContextWithAttributes:](#) (page 9) and [attributes](#) (page 13).

```
NSString *NSGraphicsContextDestinationAttributeName;
NSString *NSGraphicsContextRepresentationFormatAttributeName;
```

Constants

NSGraphicsContextDestinationAttributeName

Can be an instance of `NSWindow` or `NSBitmapImageRep` when creating a graphics context.

When determining the type of a graphics context, this value can be an `NSMutableData`, `NSString`, or `NSURL` object.

Available in Mac OS X v10.0 and later.

Declared in `NSGraphicsContext.h`.

NSGraphicsContextRepresentationFormatAttributeName

Specifies the destination file format.

This value should be retrieved only and not used to create a graphics context.

Available in Mac OS X v10.0 and later.

Declared in `NSGraphicsContext.h`.

Representation format attribute keys

These constants are possible values for the `NSGraphicsContextRepresentationFormatAttributeName` key in a graphic context's attribute dictionary.

```
NSString *NSGraphicsContextPSFormat;
NSString *NSGraphicsContextPDFFormat;
```

Constants

NSGraphicsContextPDFFormat

Destination file format is PDF.

Available in Mac OS X v10.0 and later.

Declared in `NSGraphicsContext.h`.

NSGraphicsContextPSFormat

Destination file format is PostScript.

Available in Mac OS X v10.0 and later.

Declared in NSGraphicsContext.h.

NSImageInterpolation

These interpolations are used by [imageInterpolation](#) (page 15) and [setImageInterpolation:](#) (page 19).

```
enum {
    NSImageInterpolationDefault,
    NSImageInterpolationNone,
    NSImageInterpolationLow,
    NSImageInterpolationMedium,
    NSImageInterpolationHigh
};
typedef NSUInteger NSImageInterpolation;
```

Constants

NSImageInterpolationDefault

Use the context's default interpolation.

Available in Mac OS X v10.0 and later.

Declared in NSGraphicsContext.h.

NSImageInterpolationNone

No interpolation.

Available in Mac OS X v10.0 and later.

Declared in NSGraphicsContext.h.

NSImageInterpolationLow

Fast, low-quality interpolation.

Available in Mac OS X v10.0 and later.

Declared in NSGraphicsContext.h.

NSImageInterpolationMedium

Medium quality, slower than NSImageInterpolationLow.

Available in Mac OS X v10.6 and later.

Declared in NSGraphicsContext.h.

NSImageInterpolationHigh

Slower, higher-quality interpolation.

Available in Mac OS X v10.0 and later.

Declared in NSGraphicsContext.h.

Availability

Available in Mac OS X v10.0 and later.

Declared In

NSGraphicsContext.h

NSColorRenderingIntent

These constants specify how Cocoa should handle colors that are not located within the destination color space of a graphics context. These constants are used by the methods `setColorRenderingIntent:` (page 18) and `colorRenderingIntent` (page 14).

```
enum {
    NSColorRenderingIntentDefault,
    NSColorRenderingIntentAbsoluteColorimetric,
    NSColorRenderingIntentRelativeColorimetric,
    NSColorRenderingIntentPerceptual,
    NSColorRenderingIntentSaturation
};
typedef NSInteger NSColorRenderingIntent;
```

Constants

`NSColorRenderingIntentDefault`

Use the default rendering intent for the graphics context.

Available in Mac OS X v10.5 and later.

Declared in `NSGraphics.h`.

`NSColorRenderingIntentAbsoluteColorimetric`

Map colors outside of the gamut of the output device to the closest possible match inside the gamut of the output device.

This operation can produce a clipping effect, where two different color values in the gamut of the graphics context are mapped to the same color value in the output device's gamut. Unlike the relative colorimetric, absolute colorimetric does not modify colors inside the gamut of the output device.

Available in Mac OS X v10.5 and later.

Declared in `NSGraphics.h`.

`NSColorRenderingIntentRelativeColorimetric`

Map colors outside of the gamut of the output device to the closest possible match inside the gamut of the output device.

This operation can produce a clipping effect, where two different color values in the gamut of the graphics context are mapped to the same color value in the output device's gamut. The relative colorimetric shifts all colors (including those within the gamut) to account for the difference between the white point of the graphics context and the white point of the output device.

Available in Mac OS X v10.5 and later.

Declared in `NSGraphics.h`.

`NSColorRenderingIntentPerceptual`

Preserve the visual relationship between colors by compressing the gamut of the graphics context to fit inside the gamut of the output device.

Perceptual intent is good for photographs and other complex, detailed images.

Available in Mac OS X v10.5 and later.

Declared in `NSGraphics.h`.

`NSColorRenderingIntentSaturation`

Preserve the relative saturation value of the colors when converting into the gamut of the output device.

The result is an image with bright, saturated colors. Saturation intent is good for reproducing images with low detail, such as presentation charts and graphs.

Available in Mac OS X v10.5 and later.

Declared in `NSGraphics.h`.

Deprecated NSGraphicsContext Methods

A method identified as deprecated has been superseded and may become unsupported in the future.

Available in Mac OS X v10.0 through Mac OS X v10.5

focusStack

Returns the object used by the context to track the hierarchy of views with locked focus. (Available in Mac OS X v10.0 through Mac OS X v10.5.)

```
- (void *)focusStack
```

Return Value

The object used by the context to track the hierarchy of views with locked focus.

Discussion

You should never need to get or modify the focus stack information. The use of focus stacks may be deprecated in a future release.

Availability

Available in Mac OS X v10.0 through Mac OS X v10.5.

Declared In

NSGraphicsContext.h

setFocusStack:

Sets the object used by the receiver to track the hierarchy of views with locked focus. (Available in Mac OS X v10.0 through Mac OS X v10.5.)

```
- (void)setFocusStack:(void *)stack
```

Parameters

stack

The object used by the graphics context for view-hierarchy tracking.

Discussion

You should never need to get or modify the focus stack information. The use of focus stacks may be deprecated in a future release.

Availability

Available in Mac OS X v10.0 through Mac OS X v10.5.

Declared In

NSGraphicsContext.h

Document Revision History

This table describes the changes to *NSGraphicsContext Class Reference*.

Date	Notes
2009-06-24	Reformatted constants.
2009-06-02	Updated for Mac OS X v10.6. Added NSImageInterpolationMedium.
2007-03-01	Updated for Mac OS version 10.5.
2006-11-07	Documented the CGContext instance method.
2006-05-23	First publication of this content as a separate document.

REVISION HISTORY

Document Revision History