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# NSColorSpace Class Reference

[Cocoa](#) > [Graphics & Imaging](#)



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# NSColorSpace Class Reference

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|----------------------------|---|
| <b>Inherits from</b>       | NSObject                                    |
| <b>Conforms to</b>         | NSCoding<br>NSObject (NSObject)             |
| <b>Framework</b>           | /System/Library/Frameworks/AppKit.framework |
| <b>Availability</b>        | Available in Mac OS X v10.4 and later.      |
| <b>Companion guide</b>     | Color Programming Topics for Cocoa          |
| <b>Declared in</b>         | NSColorSpace.h                              |
| <b>Related sample code</b> | Quartz 2D Shadings<br>Quartz Composer QCTV  |

## Overview

The `NSColorSpace` class enables the creation of objects representing custom color spaces. You can make custom color spaces from ColorSync profiles or from ICC profiles. `NSColorSpace` also has factory methods that return objects representing the system color spaces.

You can use the `colorWithColorSpace:components:count:` method of the `NSColor` class to create color objects using custom `NSColorSpace` objects. You can also send the `colorUsingColorSpace:` message to an `NSColor` object to convert it between two color spaces, either of which may be a custom color space.

## Tasks

### Getting a Named `NSColorSpace` Object

- + [deviceRGBColorSpace](#) (page 8)  
Returns an `NSColorSpace` object representing a calibrated or device-dependent RGB color space.
- + [genericRGBColorSpace](#) (page 9)  
Returns an `NSColorSpace` object representing a device-independent RGB color space.
- + [deviceCMYKColorSpace](#) (page 7)  
Returns an `NSColorSpace` object representing a calibrated or device-dependent CMYK color space.

- + [genericCMYKColorSpace](#) (page 8)  
Returns an `NSColorSpace` object representing a device-independent CMYK color space.
- + [deviceGrayColorSpace](#) (page 7)  
Returns an `NSColorSpace` object representing a calibrated or device-dependent gray color space.
- + [genericGrayColorSpace](#) (page 8)  
Returns an `NSColorSpace` object representing a device-independent gray color space.
- + [sRGBColorSpace](#) (page 9)  
Returns an `NSColorSpace` object representing an sRGB color space.
- + [adobeRGB1998ColorSpace](#) (page 6)  
Returns an `NSColorSpace` object representing an Adobe RGB (1998) color space.

## Initializing a Custom NSColorSpace Object

- [initWithCGColorSpace:](#) (page 11)  
Initializes and returns an `NSColorSpace` object initialized from a Core Graphics color-space object.
- [initWithColorSyncProfile:](#) (page 11)  
Initializes and returns an `NSColorSpace` object given a ColorSync profile.
- [initWithICCPProfileData:](#) (page 12)  
Initializes and returns an `NSColorSpace` object given an ICC profile.

## Accessing Color-Space Data and Attributes

- [CGColorSpace](#) (page 9)  
Returns a Core Graphics color-space object that represents a color space equivalent to the receiver's.
- [colorSpaceModel](#) (page 10)  
Returns the model on which the color space of the receiver is based.
- [colorSyncProfile](#) (page 10)  
Returns the ColorSync profile from which the receiver was created.
- [ICCPProfileData](#) (page 11)  
Returns the ICC profile data from which the receiver was created.
- [localizedName](#) (page 12)  
Returns the localized name of the receiver.
- [numberOfColorComponents](#) (page 13)  
Returns the number of components supported by the receiver.

## Class Methods

### **adobeRGB1998ColorSpace**

Returns an `NSColorSpace` object representing an Adobe RGB (1998) color space.

```
+ (NSColorSpace *)adobeRGB1998ColorSpace
```

**Return Value**

The `NSColorSpace` object. This color-additive color space has red, green, blue, and alpha components.

**Discussion**

The Adobe RGB (1998) color space was designed to encompass most of the colors achievable on CMYK color printers, but by using RGB primary colors on a device such as the computer display. For more information on this color space, go to <http://www.adobe.com/digitalimag/adobergb.html>.

**Availability**

Available in Mac OS X version 10.5.

**Declared In**

`NSColorSpace.h`

**deviceCMYKColorSpace**

Returns an `NSColorSpace` object representing a calibrated or device-dependent CMYK color space.

+ (`NSColorSpace *`)`deviceCMYKColorSpace`

**Return Value**

The `NSColorSpace` object. This color space has cyan, magenta, yellow, black, and alpha components. Typical devices that use the color-subtractive CMYK color space are color printers. This object corresponds to the Cocoa color space name `NSDeviceCMYKColorSpace`.

**Availability**

Available in Mac OS X v10.4 and later.

**See Also**

+ [genericCMYKColorSpace](#) (page 8)

**Declared In**

`NSColorSpace.h`

**deviceGrayColorSpace**

Returns an `NSColorSpace` object representing a calibrated or device-dependent gray color space.

+ (`NSColorSpace *`)`deviceGrayColorSpace`

**Return Value**

The `NSColorSpace` object. The color space also includes an alpha component. Typical devices that use this color space are grayscale printers and displays. This object corresponds to the Cocoa color space name `NSDeviceWhiteColorSpace`.

**Availability**

Available in Mac OS X v10.4 and later.

**See Also**

+ [genericGrayColorSpace](#) (page 8)

**Declared In**

`NSColorSpace.h`

## deviceRGBColorSpace

Returns an `NSColorSpace` object representing a calibrated or device-dependent RGB color space.

+ (NSColorSpace \*)deviceRGBColorSpace

### Return Value

The `NSColorSpace` object. This color space has red, green, blue, and alpha components. Typical devices that use the color-additive RGB color space are displays and scanners. This object corresponds to the Cocoa color space name `NSDeviceRGBColorSpace`.

### Availability

Available in Mac OS X v10.4 and later.

### See Also

+ [genericRGBColorSpace](#) (page 9)

### Declared In

`NSColorSpace.h`

## genericCMYKColorSpace

Returns an `NSColorSpace` object representing a device-independent CMYK color space.

+ (NSColorSpace \*)genericCMYKColorSpace

### Return Value

The `NSColorSpace` object. This color space has cyan, magenta, yellow, black and alpha component.

### Availability

Available in Mac OS X v10.4 and later.

### See Also

+ [deviceCMYKColorSpace](#) (page 7)

### Declared In

`NSColorSpace.h`

## genericGrayColorSpace

Returns an `NSColorSpace` object representing a device-independent gray color space.

+ (NSColorSpace \*)genericGrayColorSpace

### Return Value

The `NSColorSpace` object. The color space also includes an alpha component. This object corresponds to the Cocoa color space name `NSCalibratedWhiteColorSpace`.

### Availability

Available in Mac OS X v10.4 and later.

### See Also

+ [deviceGrayColorSpace](#) (page 7)



**Declared In**

NSColorSpace.h

**genericRGBColorSpace**

Returns an `NSColorSpace` object representing a device-independent RGB color space.

```
+ (NSColorSpace *)genericRGBColorSpace
```

**Return Value**

The `NSColorSpace` object. This color-additive color space has red, green, blue, and alpha components. This object corresponds to the Cocoa color space name `NSCalibratedRGBColorSpace`.

**Availability**

Available in Mac OS X v10.4 and later.

**See Also**

+ [deviceRGBColorSpace](#) (page 8)

**Related Sample Code**

Quartz 2D Shadings

Quartz Composer QCTV

**Declared In**

NSColorSpace.h

**sRGBColorSpace**

Returns an `NSColorSpace` object representing an sRGB color space.

```
+ (NSColorSpace *)sRGBColorSpace
```

**Return Value**

The `NSColorSpace` object. This color-additive color space has red, green, blue, and alpha components.

**Discussion**

The sRGB color space is a standard color space for use on monitors, printers, and the Internet. For further information on sRGB, see <http://www.color.org/srgb.html>.

**Availability**

Available in Mac OS X version 10.5.

**Declared In**

NSColorSpace.h

## Instance Methods

**CGColorSpace**

Returns a Core Graphics color-space object that represents a color space equivalent to the receiver's.

- (CGColorSpaceRef)CGColorSpace

**Return Value**

A reference to an Core Graphics color-space object (CGColorSpaceRef) or NULL if the type of color space represented by the receiver cannot be represented by a CGColorSpace object.

**Availability**

Available in Mac OS X version 10.5.

**See Also**

- initWithCGColorSpace: (page 11)

**Declared In**

NSColorSpace.h

## colorSpaceModel

Returns the model on which the color space of the receiver is based.

- (NSColorSpaceModel)colorSpaceModel

**Return Value**

A constant specifying the color space model of the receiver. See [Color Space Models](#) (page 13) for a list of valid NSColorSpaceModel constants.

**Availability**

Available in Mac OS X v10.4 and later.

**Declared In**

NSColorSpace.h

## colorSyncProfile

Returns the ColorSync profile from which the receiver was created.

- (void \*)colorSyncProfile

**Return Value**

The ColorSync profile on which the receiver is based. You need to cast this value to an object of opaque type CMPProfileRef. Returns NULL if the receiver was created from a ICC-profile data instead. See *ColorSync Manager Reference* for further information on CMPProfileRef.

**Availability**

Available in Mac OS X v10.4 and later.

**See Also**

- initWithColorSyncProfile: (page 11)

**Declared In**

NSColorSpace.h

## ICCProfileData

Returns the ICC profile data from which the receiver was created.

- (NSData \*)ICCProfileData

### Return Value

The ICC profile from which the receiver was created. This method attempts to compute the profile data from a `CMPProfileRef` object and returns `nil` if it is unable to.

For information on ICC profiles, see the latest ICC specification at the [International Color Consortium website](#).

### Availability

Available in Mac OS X v10.4 and later.

### See Also

- [initWithICCProfileData:](#) (page 12)

### Declared In

`NSColorSpace.h`

## initWithCGColorSpace:

Initializes and returns an `NSColorSpace` object initialized from a Core Graphics color-space object.

- (id)initWithCGColorSpace:(CGColorSpaceRef)cgColorSpace

### Parameters

*cgColorSpace*

A reference to a Core Graphics color-space object (`CGColorSpaceRef`).

### Return Value

The initialized `NSColorSpace` object or `nil` if initialization was not successful, which might happen if the color space represented by the `CGColorSpace` object is not supported by `NSColorSpace`.

### Discussion

Because `NSColorSpace` might retain or copy the `CGColorSpace` object depending on circumstances, you should not assume pointer equality of the provided object with that returned by [CGColorSpace](#) (page 9). And even if the pointer equality is preserved during runtime, it may not be after the `NSColorSpace` object is archived and unarchived.

### Availability

Available in Mac OS X version 10.5 and later.

### Declared In

`NSColorSpace.h`

## initWithColorSyncProfile:

Initializes and returns an `NSColorSpace` object given a ColorSync profile.

- (id)initWithColorSyncProfile:(void \*)prof

**Parameters***prof*

The ColorSync profile to use when initializing the `NSColorSpace` object. This should be an object of opaque type `CMProfileRef`. See *ColorSync Manager Reference* for further information on `CMProfileRef`.

**Return Value**

The initialized `NSColorSpace` object or `nil` if initialization was not successful.

**Availability**

Available in Mac OS X v10.4 and later.

**See Also**

- [colorSyncProfile](#) (page 10)

**Declared In**

`NSColorSpace.h`

**initWithICCProfileData:**

Initializes and returns an `NSColorSpace` object given an ICC profile.

```
- (id)initWithICCProfileData:(NSData *)iccData
```

**Parameters***iccData*

The ICC profile to use when initializing the `NSColorSpace` object. For information on ICC profiles, see the latest ICC specification at the [International Color Consortium](#) website.

**Return Value**

The initialized `NSColorSpace` object or `nil` if initialization was not successful.

**Availability**

Available in Mac OS X v10.4 and later.

**See Also**

- [ICCProfileData](#) (page 11)

**Declared In**

`NSColorSpace.h`

**localizedName**

Returns the localized name of the receiver.

```
- (NSString *)localizedName
```

**Return Value**

The name of the color space as a localized string or `nil` if no localized name exists.

**Availability**

Available in Mac OS X v10.4 and later.

**Declared In**

NSColorSpace.h

**numberOfColorComponents**

Returns the number of components supported by the receiver.

- (NSInteger)numberOfColorComponents

**Return Value**

The number of components (excluding alpha) the receiver supports or zero if the receiver is not based on float components.

**Availability**

Available in Mac OS X v10.4 and later.

**Declared In**

NSColorSpace.h

## Constants

**NSColorSpaceModel**The type of the color-space mode constants listed in [“Color Space Models”](#) (page 13).

typedef NSInteger NSColorSpaceModel;

**Availability**

Available in Mac OS X v10.4 and later.

**Declared In**

NSColorSpace.h

**Color Space Models**

Identify the abstract model on which an NSColorSpace object is based.

```
typedef enum {
    NSUnknownColorSpaceModel = -1,
    NSGrayColorSpaceModel,
    NSRGBColorSpaceModel,
    NSCMYKColorSpaceModel,
    NSLABColorSpaceModel,
    NSDeviceNColorSpaceModel,
    NSIndexedColorSpaceModel,
    NSPatternColorSpaceModel
};
```

**Constants**

NSUnknownColorSpaceModel

This model is not known to NSColorSpace.

Available in Mac OS X v10.4 and later.

Declared in NSColorSpace.h.

NSGrayColorSpaceModel

The grayscale color-space model. Can refer to both device-dependent and generic color space variants.

Available in Mac OS X v10.4 and later.

Declared in NSColorSpace.h.

NSRGBColorSpaceModel

The RGB (red green blue) color-space model. Can refer to both device-dependent and generic color space variants.

Available in Mac OS X v10.4 and later.

Declared in NSColorSpace.h.

NSCMYKColorSpaceModel

The CYMK (cyan, yellow, magenta, black) color-space model. Can refer to both device-dependent and generic color space variants.

Available in Mac OS X v10.4 and later.

Declared in NSColorSpace.h.

NSLABColorSpaceModel

The L\*a\*b\* device-independent color-space model, which represents colors relative to a reference white point.

Available in Mac OS X v10.4 and later.

Declared in NSColorSpace.h.

NSDeviceNColorSpaceModel

DeviceN is a color-space model from Adobe Systems, Inc. used in PostScript and PDF color specification.

Available in Mac OS X v10.4 and later.

Declared in NSColorSpace.h.

NSIndexedColorSpaceModel

An indexed color space, which identifies specified discrete colors in a color list by index number. An indexed color value (a color specification in indexed color space) consists of an index value that refers to a color in a color list.

Available in Mac OS X version 10.5 and later.

Declared in NSColorSpace.h.

`NSPatternColorSpaceModel`

Identifies a pattern color space, which is simply an image that is repeated over and over again in a tiled pattern.

Available in Mac OS X version 10.5 and later.

Declared in `NSColorSpace.h`.

**Discussion**

These constants are returned from `colorSpaceModel` (page 10) and are derived from the profile data encapsulated by the object.

**Availability**

Available in Mac OS X v10.4 and later.

**Declared In**

`NSColorSpace.h`





# Document Revision History

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

| Date       | Notes   |
|------------|---|
| 2007-02-28 | Updated for Mac OS X version 10.5.                        |
| 2006-05-23 | First publication of this content as a separate document. |

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