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# CIKernel Class Reference

Graphics & Animation: 2D Drawing



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# Contents

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## **CIKernel Class Reference 5**

---

- Overview 5
- Tasks 5
  - Creating a Kernel 5
  - Getting a Kernel Name 5
  - Setting a Selector 6
- Class Methods 6
  - kernelsWithString: 6
- Instance Methods 6
  - name 6
  - setROISelector: 7

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## **Document Revision History 9**

---

---

## **Index 11**

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# CIKernel Class Reference

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<b>Inherits from</b>	NSObject
<b>Conforms to</b>	NSObject (NSObject)
<b>Framework</b>	Library/Frameworks/QuartzCore.framework
<b>Availability</b>	Mac OS X v10.4 and later
<b>Declared in</b>	CIKernel.h
<b>Companion guides</b>	Core Image Programming Guide Core Image Kernel Language Reference
<b>Related sample code</b>	CIAnnotation CIColorTracking CIHazeFilterSample

## Overview

The `CIKernel` class maintains kernel routines that process individual pixels. The kernel routines in a `CIKernel` object use a subset of the OpenGL Shading Language and Core Image extensions to this language. You use a `CIKernel` object in conjunction with other Core Image classes, such as `CIFilter`, `CIFilterShape`, and `CISampler`, to create custom filters.

## Tasks

### Creating a Kernel

- + [kernelWithString:](#) (page 6)  
Creates and returns an array of `CIKernel` objects.

### Getting a Kernel Name

- [name](#) (page 6)  
Returns the name of a kernel routine.

## Setting a Selector

- [setROISelector:](#) (page 7)

Sets the selector used to query the region of interest of the kernel.

## Class Methods

### kernelsWithString:

Creates and returns an array of `CIKernel` objects.

```
+ (NSArray *)kernelsWithString:(NSString *)s
```

#### Parameters

`s`

A program in the Core Image dialect of the OpenGL Shading Language that contains one or more routines, each of which is marked using the `kernel` keyword.

#### Return Value

An array of `CIKernel` objects. The array contains one `CIKernel` object for each kernel routine in the supplied string.

#### Discussion

See *Core Image Kernel Language Reference* for more details.

#### Availability

Mac OS X v10.4 and later.

#### Related Sample Code

[CIAnnotation](#)

[CIColorTracking](#)

[CIHazeFilterSample](#)

#### Declared In

`CIKernel.h`

## Instance Methods

### name

Returns the name of a kernel routine.

```
- (NSString *)name
```

#### Return Value

The name of the kernel routine.

**Availability**

Mac OS X v10.4 and later.

**Declared In**

CIKernel.h

**setROISelector:**

Sets the selector used to query the region of interest of the kernel.

```
- (void)setROISelector:(SEL)aMethod
```

**Parameters***aMethod*

A selector name.

**Discussion**

The *aMethod* argument must use the signature that is defined for the `regionOf:destRect:userInfo:method`, which is as follows:

```
- (CGRect) regionOf:(int)samplerIndex destRect:(CGRect)r userInfo:obj;
```

where:

- *samplerIndex* defines the sampler to query
- *destRect* is the extent of the region, in working space coordinates, to render.
- *userInfo* is the object associated with the `kCIApplOptionUserInfo` option when the kernel is applied to its arguments. The *userInfo* is important because instance variables can't be used by the defining class. Instance variables must be passed through the *userInfo* argument.

The `regionOf:destRect:userInfo:method` of the `CIFilter` object is called by the framework. This method returns the rectangle that contains the region of the sampler that the kernel needs to render the specified destination rectangle.

A sample `regionOf:destRect:userInfo:method` might look as follows:

```
- (CGRect)regionOf:(int)sampler destRect:(CGRect)r userInfo:params
{
    float scale = fabs ([params X]);
    return CGRectInset (r, scale * -1.3333, scale * -1.3333);
}
```

In the filter code, you set the selector using the following:

```
kernel setROISelector:@selector(regionOf:destRect:userInfo:)]
```

**Availability**

Mac OS X v10.4 and later.

**Related Sample Code**

CIAnnotation

**Declared In**

CIKernel.h



# Document Revision History

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

Date	Notes
2006-12-05	Made minor editorial changes.
2006-06-28	Added links to the Core Image Kernel Language Reference.
	Added links to <i>Core Image Kernel Language Reference</i> .
2006-05-23	First publication of this content as a separate document.
	Added parameter descriptions and updated Class Description.

**REVISION HISTORY**

Document Revision History

# Index

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## K

---

kernelWithString: [class method 6](#)

## N

---

name [instance method 6](#)

## S

---

setROISelector: [instance method 7](#)