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# CIKernel Class Reference

[Cocoa > Graphics & Imaging](#)



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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

## 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`

#### 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**

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