| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Kernel.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| [**PREV CLASS**](http://docs.google.com/java/awt/image/IndexColorModel.html)   [**NEXT CLASS**](http://docs.google.com/java/awt/image/LookupOp.html) | [**FRAMES**](http://docs.google.com/index.html?java/awt/image/Kernel.html)    [**NO FRAMES**](http://docs.google.com/Kernel.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | FIELD | [CONSTR](#3znysh7) | [METHOD](#2et92p0) | DETAIL: FIELD | [CONSTR](#3dy6vkm) | [METHOD](#4d34og8) |

## **java.awt.image**

Class Kernel

[java.lang.Object](http://docs.google.com/java/lang/Object.html)  
 **java.awt.image.Kernel**

**All Implemented Interfaces:** [Cloneable](http://docs.google.com/java/lang/Cloneable.html)

public class **Kernel**extends [Object](http://docs.google.com/java/lang/Object.html)implements [Cloneable](http://docs.google.com/java/lang/Cloneable.html)

The Kernel class defines a matrix that describes how a specified pixel and its surrounding pixels affect the value computed for the pixel's position in the output image of a filtering operation. The X origin and Y origin indicate the kernel matrix element that corresponds to the pixel position for which an output value is being computed.

**See Also:**[ConvolveOp](http://docs.google.com/java/awt/image/ConvolveOp.html)

| **Constructor Summary** | |
| --- | --- |
| [**Kernel**](http://docs.google.com/java/awt/image/Kernel.html#Kernel(int,%20int,%20float%5B%5D))(int width, int height, float[] data)            Constructs a Kernel object from an array of floats. |

| **Method Summary** | |
| --- | --- |
| [Object](http://docs.google.com/java/lang/Object.html) | [**clone**](http://docs.google.com/java/awt/image/Kernel.html#clone())()            Clones this object. |
| int | [**getHeight**](http://docs.google.com/java/awt/image/Kernel.html#getHeight())()            Returns the height of this Kernel. |
| float[] | [**getKernelData**](http://docs.google.com/java/awt/image/Kernel.html#getKernelData(float%5B%5D))(float[] data)            Returns the kernel data in row major order. |
| int | [**getWidth**](http://docs.google.com/java/awt/image/Kernel.html#getWidth())()            Returns the width of this Kernel. |
| int | [**getXOrigin**](http://docs.google.com/java/awt/image/Kernel.html#getXOrigin())()            Returns the X origin of this Kernel. |
| int | [**getYOrigin**](http://docs.google.com/java/awt/image/Kernel.html#getYOrigin())()            Returns the Y origin of this Kernel. |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [equals](http://docs.google.com/java/lang/Object.html#equals(java.lang.Object)), [finalize](http://docs.google.com/java/lang/Object.html#finalize()), [getClass](http://docs.google.com/java/lang/Object.html#getClass()), [hashCode](http://docs.google.com/java/lang/Object.html#hashCode()), [notify](http://docs.google.com/java/lang/Object.html#notify()), [notifyAll](http://docs.google.com/java/lang/Object.html#notifyAll()), [toString](http://docs.google.com/java/lang/Object.html#toString()), [wait](http://docs.google.com/java/lang/Object.html#wait()), [wait](http://docs.google.com/java/lang/Object.html#wait(long)), [wait](http://docs.google.com/java/lang/Object.html#wait(long,%20int)) |

| **Constructor Detail** |
| --- |

### Kernel

public **Kernel**(int width,  
 int height,  
 float[] data)

Constructs a Kernel object from an array of floats. The first width\*height elements of the data array are copied. If the length of the data array is less than width\*height, an IllegalArgumentException is thrown. The X origin is (width-1)/2 and the Y origin is (height-1)/2.

**Parameters:**width - width of the kernelheight - height of the kerneldata - kernel data in row major order **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if the length of data is less than the product of width and height

| **Method Detail** |
| --- |

### getXOrigin

public final int **getXOrigin**()

Returns the X origin of this Kernel.

**Returns:**the X origin.

### getYOrigin

public final int **getYOrigin**()

Returns the Y origin of this Kernel.

**Returns:**the Y origin.

### getWidth

public final int **getWidth**()

Returns the width of this Kernel.

**Returns:**the width of this Kernel.

### getHeight

public final int **getHeight**()

Returns the height of this Kernel.

**Returns:**the height of this Kernel.

### getKernelData

public final float[] **getKernelData**(float[] data)

Returns the kernel data in row major order. The data array is returned. If data is null, a new array is allocated.

**Parameters:**data - if non-null, contains the returned kernel data **Returns:**the data array containing the kernel data in row major order or, if data is null, a newly allocated array containing the kernel data in row major order **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if data is less than the size of this Kernel

### clone

public [Object](http://docs.google.com/java/lang/Object.html) **clone**()

Clones this object.

**Overrides:**[clone](http://docs.google.com/java/lang/Object.html#clone()) in class [Object](http://docs.google.com/java/lang/Object.html) **Returns:**a clone of this object.**See Also:**[Cloneable](http://docs.google.com/java/lang/Cloneable.html)

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Kernel.html) | [**Tree**](http://docs.google.com/package-tree.html) | [**Deprecated**](http://docs.google.com/deprecated-list.html) | [**Index**](http://docs.google.com/index-files/index-1.html) | [**Help**](http://docs.google.com/help-doc.html) | | --- | --- | --- | --- | --- | --- | --- | --- | | | ***Java™ Platform***  ***Standard Ed. 6*** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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[Submit a bug or feature](http://bugs.sun.com/services/bugreport/index.jsp)

For further API reference and developer documentation, see [Java SE Developer Documentation](http://docs.google.com/webnotes/devdocs-vs-specs.html). That documentation contains more detailed, developer-targeted descriptions, with conceptual overviews, definitions of terms, workarounds, and working code examples.

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