| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/GraphicAttribute.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/font/GlyphVector.html)   [**NEXT CLASS**](http://docs.google.com/java/awt/font/ImageGraphicAttribute.html) | [**FRAMES**](http://docs.google.com/index.html?java/awt/font/GraphicAttribute.html)    [**NO FRAMES**](http://docs.google.com/GraphicAttribute.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#3znysh7) | [CONSTR](#2et92p0) | [METHOD](#tyjcwt) | DETAIL: [FIELD](#1t3h5sf) | [CONSTR](#lnxbz9) | [METHOD](#1ksv4uv) |

## **java.awt.font**

Class GraphicAttribute

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

**Direct Known Subclasses:** [ImageGraphicAttribute](http://docs.google.com/java/awt/font/ImageGraphicAttribute.html), [ShapeGraphicAttribute](http://docs.google.com/java/awt/font/ShapeGraphicAttribute.html)

public abstract class **GraphicAttribute**extends [Object](http://docs.google.com/java/lang/Object.html)

This class is used with the CHAR\_REPLACEMENT attribute.

The GraphicAttribute class represents a graphic embedded in text. Clients subclass this class to implement their own char replacement graphics. Clients wishing to embed shapes and images in text need not subclass this class. Instead, clients can use the [ShapeGraphicAttribute](http://docs.google.com/java/awt/font/ShapeGraphicAttribute.html) and [ImageGraphicAttribute](http://docs.google.com/java/awt/font/ImageGraphicAttribute.html) classes.

Subclasses must ensure that their objects are immutable once they are constructed. Mutating a GraphicAttribute that is used in a [TextLayout](http://docs.google.com/java/awt/font/TextLayout.html) results in undefined behavior from the TextLayout.

| **Field Summary** | |
| --- | --- |
| static int | [**BOTTOM\_ALIGNMENT**](http://docs.google.com/java/awt/font/GraphicAttribute.html#BOTTOM_ALIGNMENT)            Aligns bottom of graphic to bottom of line. |
| static int | [**CENTER\_BASELINE**](http://docs.google.com/java/awt/font/GraphicAttribute.html#CENTER_BASELINE)            Aligns origin of graphic to center baseline of line. |
| static int | [**HANGING\_BASELINE**](http://docs.google.com/java/awt/font/GraphicAttribute.html#HANGING_BASELINE)            Aligns origin of graphic to hanging baseline of line. |
| static int | [**ROMAN\_BASELINE**](http://docs.google.com/java/awt/font/GraphicAttribute.html#ROMAN_BASELINE)            Aligns origin of graphic to roman baseline of line. |
| static int | [**TOP\_ALIGNMENT**](http://docs.google.com/java/awt/font/GraphicAttribute.html#TOP_ALIGNMENT)            Aligns top of graphic to top of line. |

| **Constructor Summary** | |
| --- | --- |
| protected | [**GraphicAttribute**](http://docs.google.com/java/awt/font/GraphicAttribute.html#GraphicAttribute(int))(int alignment)            Constructs a GraphicAttribute. |

| **Method Summary** | |
| --- | --- |
| abstract  void | [**draw**](http://docs.google.com/java/awt/font/GraphicAttribute.html#draw(java.awt.Graphics2D,%20float,%20float))([Graphics2D](http://docs.google.com/java/awt/Graphics2D.html) graphics, float x, float y)            Renders this GraphicAttribute at the specified location. |
| abstract  float | [**getAdvance**](http://docs.google.com/java/awt/font/GraphicAttribute.html#getAdvance())()            Returns the advance of this GraphicAttribute. |
| int | [**getAlignment**](http://docs.google.com/java/awt/font/GraphicAttribute.html#getAlignment())()            Returns the alignment of this GraphicAttribute. |
| abstract  float | [**getAscent**](http://docs.google.com/java/awt/font/GraphicAttribute.html#getAscent())()            Returns the ascent of this GraphicAttribute. |
| [Rectangle2D](http://docs.google.com/java/awt/geom/Rectangle2D.html) | [**getBounds**](http://docs.google.com/java/awt/font/GraphicAttribute.html#getBounds())()            Returns a [Rectangle2D](http://docs.google.com/java/awt/geom/Rectangle2D.html) that encloses all of the bits drawn by this GraphicAttribute relative to the rendering position. |
| abstract  float | [**getDescent**](http://docs.google.com/java/awt/font/GraphicAttribute.html#getDescent())()            Returns the descent of this GraphicAttribute. |
| [GlyphJustificationInfo](http://docs.google.com/java/awt/font/GlyphJustificationInfo.html) | [**getJustificationInfo**](http://docs.google.com/java/awt/font/GraphicAttribute.html#getJustificationInfo())()            Returns the justification information for this GraphicAttribute. |
| [Shape](http://docs.google.com/java/awt/Shape.html) | [**getOutline**](http://docs.google.com/java/awt/font/GraphicAttribute.html#getOutline(java.awt.geom.AffineTransform))([AffineTransform](http://docs.google.com/java/awt/geom/AffineTransform.html) tx)            Return a [Shape](http://docs.google.com/java/awt/Shape.html) that represents the region that this GraphicAttribute renders. |

| **Methods inherited from class java.lang.**[**Object**](http://docs.google.com/java/lang/Object.html) |
| --- |
| [clone](http://docs.google.com/java/lang/Object.html#clone()), [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)) |

| **Field Detail** |
| --- |

### TOP\_ALIGNMENT

public static final int **TOP\_ALIGNMENT**

Aligns top of graphic to top of line.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.font.GraphicAttribute.TOP_ALIGNMENT)

### BOTTOM\_ALIGNMENT

public static final int **BOTTOM\_ALIGNMENT**

Aligns bottom of graphic to bottom of line.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.font.GraphicAttribute.BOTTOM_ALIGNMENT)

### ROMAN\_BASELINE

public static final int **ROMAN\_BASELINE**

Aligns origin of graphic to roman baseline of line.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.font.GraphicAttribute.ROMAN_BASELINE)

### CENTER\_BASELINE

public static final int **CENTER\_BASELINE**

Aligns origin of graphic to center baseline of line.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.font.GraphicAttribute.CENTER_BASELINE)

### HANGING\_BASELINE

public static final int **HANGING\_BASELINE**

Aligns origin of graphic to hanging baseline of line.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.font.GraphicAttribute.HANGING_BASELINE)

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

### GraphicAttribute

protected **GraphicAttribute**(int alignment)

Constructs a GraphicAttribute. Subclasses use this to define the alignment of the graphic.

**Parameters:**alignment - an int representing one of the GraphicAttribute alignment fields **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if alignment is not one of the five defined values.

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

### getAscent

public abstract float **getAscent**()

Returns the ascent of this GraphicAttribute. A graphic can be rendered above its ascent.

**Returns:**the ascent of this GraphicAttribute.**See Also:**[getBounds()](http://docs.google.com/java/awt/font/GraphicAttribute.html#getBounds())

### getDescent

public abstract float **getDescent**()

Returns the descent of this GraphicAttribute. A graphic can be rendered below its descent.

**Returns:**the descent of this GraphicAttribute.**See Also:**[getBounds()](http://docs.google.com/java/awt/font/GraphicAttribute.html#getBounds())

### getAdvance

public abstract float **getAdvance**()

Returns the advance of this GraphicAttribute. The GraphicAttribute object's advance is the distance from the point at which the graphic is rendered and the point where the next character or graphic is rendered. A graphic can be rendered beyond its advance

**Returns:**the advance of this GraphicAttribute.**See Also:**[getBounds()](http://docs.google.com/java/awt/font/GraphicAttribute.html#getBounds())

### getBounds

public [Rectangle2D](http://docs.google.com/java/awt/geom/Rectangle2D.html) **getBounds**()

Returns a [Rectangle2D](http://docs.google.com/java/awt/geom/Rectangle2D.html) that encloses all of the bits drawn by this GraphicAttribute relative to the rendering position. A graphic may be rendered beyond its origin, ascent, descent, or advance; but if it is, this method's implementation must indicate where the graphic is rendered. Default bounds is the rectangle (0, -ascent, advance, ascent+descent).

**Returns:**a Rectangle2D that encloses all of the bits rendered by this GraphicAttribute.

### getOutline

public [Shape](http://docs.google.com/java/awt/Shape.html) **getOutline**([AffineTransform](http://docs.google.com/java/awt/geom/AffineTransform.html) tx)

Return a [Shape](http://docs.google.com/java/awt/Shape.html) that represents the region that this GraphicAttribute renders. This is used when a [TextLayout](http://docs.google.com/java/awt/font/TextLayout.html) is requested to return the outline of the text. The (untransformed) shape must not extend outside the rectangular bounds returned by getBounds. The default implementation returns the rectangle returned by [getBounds()](http://docs.google.com/java/awt/font/GraphicAttribute.html#getBounds()), transformed by the provided [AffineTransform](http://docs.google.com/java/awt/geom/AffineTransform.html) if present.

**Parameters:**tx - an optional [AffineTransform](http://docs.google.com/java/awt/geom/AffineTransform.html) to apply to the outline of this GraphicAttribute. This can be null. **Returns:**a Shape representing this graphic attribute, suitable for stroking or filling.**Since:** 1.6

### draw

public abstract void **draw**([Graphics2D](http://docs.google.com/java/awt/Graphics2D.html) graphics,  
 float x,  
 float y)

Renders this GraphicAttribute at the specified location.

**Parameters:**graphics - the [Graphics2D](http://docs.google.com/java/awt/Graphics2D.html) into which to render the graphicx - the user-space X coordinate where the graphic is renderedy - the user-space Y coordinate where the graphic is rendered

### getAlignment

public final int **getAlignment**()

Returns the alignment of this GraphicAttribute. Alignment can be to a particular baseline, or to the absolute top or bottom of a line.

**Returns:**the alignment of this GraphicAttribute.

### getJustificationInfo

public [GlyphJustificationInfo](http://docs.google.com/java/awt/font/GlyphJustificationInfo.html) **getJustificationInfo**()

Returns the justification information for this GraphicAttribute. Subclasses can override this method to provide different justification information.

**Returns:**a [GlyphJustificationInfo](http://docs.google.com/java/awt/font/GlyphJustificationInfo.html) object that contains the justification information for this GraphicAttribute.

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/GraphicAttribute.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/font/GlyphVector.html)   [**NEXT CLASS**](http://docs.google.com/java/awt/font/ImageGraphicAttribute.html) | [**FRAMES**](http://docs.google.com/index.html?java/awt/font/GraphicAttribute.html)    [**NO FRAMES**](http://docs.google.com/GraphicAttribute.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
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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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