| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Component.FlipBufferStrategy.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/Component.BltBufferStrategy.html)   [**NEXT CLASS**](http://docs.google.com/java/awt/ComponentOrientation.html) | [**FRAMES**](http://docs.google.com/index.html?java/awt/Component.FlipBufferStrategy.html)    [**NO FRAMES**](http://docs.google.com/Component.FlipBufferStrategy.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**

Class Component.FlipBufferStrategy

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

**Enclosing class:**[Component](http://docs.google.com/java/awt/Component.html)

protected class **Component.FlipBufferStrategy**extends [BufferStrategy](http://docs.google.com/java/awt/image/BufferStrategy.html)

Inner class for flipping buffers on a component. That component must be a Canvas or Window.

**Since:** 1.4 **See Also:**[Canvas](http://docs.google.com/java/awt/Canvas.html), [Window](http://docs.google.com/java/awt/Window.html), [BufferStrategy](http://docs.google.com/java/awt/image/BufferStrategy.html)

| **Field Summary** | |
| --- | --- |
| protected  [BufferCapabilities](http://docs.google.com/java/awt/BufferCapabilities.html) | [**caps**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#caps)            The buffering capabilities |
| protected  [Image](http://docs.google.com/java/awt/Image.html) | [**drawBuffer**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#drawBuffer)            The drawing buffer |
| protected  [VolatileImage](http://docs.google.com/java/awt/image/VolatileImage.html) | [**drawVBuffer**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#drawVBuffer)            The drawing buffer as a volatile image |
| protected  int | [**numBuffers**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#numBuffers)            The number of buffers |
| protected  boolean | [**validatedContents**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#validatedContents)            Whether or not the drawing buffer has been recently restored from a lost state. |

| **Constructor Summary** | |
| --- | --- |
| protected | [**Component.FlipBufferStrategy**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#Component.FlipBufferStrategy(int,%20java.awt.BufferCapabilities))(int numBuffers, [BufferCapabilities](http://docs.google.com/java/awt/BufferCapabilities.html) caps)            Creates a new flipping buffer strategy for this component. |

| **Method Summary** | |
| --- | --- |
| boolean | [**contentsLost**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#contentsLost())()            Returns whether the drawing buffer was lost since the last call to getDrawGraphics. |
| boolean | [**contentsRestored**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#contentsRestored())()            Returns whether the drawing buffer was recently restored from a lost state and reinitialized to the default background color (white). |
| protected  void | [**createBuffers**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#createBuffers(int,%20java.awt.BufferCapabilities))(int numBuffers, [BufferCapabilities](http://docs.google.com/java/awt/BufferCapabilities.html) caps)            Creates one or more complex, flipping buffers with the given capabilities. |
| protected  void | [**destroyBuffers**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#destroyBuffers())()            Destroys the buffers created through this object |
| void | [**dispose**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#dispose())()            Releases system resources currently consumed by this BufferStrategy and removes it from the associated Component. |
| protected  void | [**flip**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#flip(java.awt.BufferCapabilities.FlipContents))([BufferCapabilities.FlipContents](http://docs.google.com/java/awt/BufferCapabilities.FlipContents.html) flipAction)            Flipping moves the contents of the back buffer to the front buffer, either by copying or by moving the video pointer. |
| protected  [Image](http://docs.google.com/java/awt/Image.html) | [**getBackBuffer**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#getBackBuffer())() |
| [BufferCapabilities](http://docs.google.com/java/awt/BufferCapabilities.html) | [**getCapabilities**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#getCapabilities())()            Returns the BufferCapabilities for this BufferStrategy. |
| [Graphics](http://docs.google.com/java/awt/Graphics.html) | [**getDrawGraphics**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#getDrawGraphics())()            Creates a graphics context for the drawing buffer. |
| protected  void | [**revalidate**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#revalidate())()            Restore the drawing buffer if it has been lost |
| void | [**show**](http://docs.google.com/java/awt/Component.FlipBufferStrategy.html#show())()            Makes the next available buffer visible by either blitting or flipping. |

| **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** |
| --- |

### numBuffers

protected int **numBuffers**

The number of buffers

### caps

protected [BufferCapabilities](http://docs.google.com/java/awt/BufferCapabilities.html) **caps**

The buffering capabilities

### drawBuffer

protected [Image](http://docs.google.com/java/awt/Image.html) **drawBuffer**

The drawing buffer

### drawVBuffer

protected [VolatileImage](http://docs.google.com/java/awt/image/VolatileImage.html) **drawVBuffer**

The drawing buffer as a volatile image

### validatedContents

protected boolean **validatedContents**

Whether or not the drawing buffer has been recently restored from a lost state.

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

### Component.FlipBufferStrategy

protected **Component.FlipBufferStrategy**(int numBuffers,  
 [BufferCapabilities](http://docs.google.com/java/awt/BufferCapabilities.html) caps)  
 throws [AWTException](http://docs.google.com/java/awt/AWTException.html)

Creates a new flipping buffer strategy for this component. The component must be a Canvas or Window.

**Parameters:**numBuffers - the number of bufferscaps - the capabilities of the buffers **Throws:** [AWTException](http://docs.google.com/java/awt/AWTException.html) - if the capabilities supplied could not be supported or met [ClassCastException](http://docs.google.com/java/lang/ClassCastException.html) - if the component is not a canvas or window.**See Also:**[Canvas](http://docs.google.com/java/awt/Canvas.html), [Window](http://docs.google.com/java/awt/Window.html)

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

### createBuffers

protected void **createBuffers**(int numBuffers,  
 [BufferCapabilities](http://docs.google.com/java/awt/BufferCapabilities.html) caps)  
 throws [AWTException](http://docs.google.com/java/awt/AWTException.html)

Creates one or more complex, flipping buffers with the given capabilities.

**Parameters:**numBuffers - number of buffers to create; must be greater than onecaps - the capabilities of the buffers. BufferCapabilities.isPageFlipping must be true. **Throws:** [AWTException](http://docs.google.com/java/awt/AWTException.html) - if the capabilities supplied could not be supported or met [IllegalStateException](http://docs.google.com/java/lang/IllegalStateException.html) - if the component has no peer [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if numBuffers is less than two, or if BufferCapabilities.isPageFlipping is not true.**See Also:**[BufferCapabilities.isPageFlipping()](http://docs.google.com/java/awt/BufferCapabilities.html#isPageFlipping())

### getBackBuffer

protected [Image](http://docs.google.com/java/awt/Image.html) **getBackBuffer**()

**Returns:**direct access to the back buffer, as an image. **Throws:** [IllegalStateException](http://docs.google.com/java/lang/IllegalStateException.html) - if the buffers have not yet been created

### flip

protected void **flip**([BufferCapabilities.FlipContents](http://docs.google.com/java/awt/BufferCapabilities.FlipContents.html) flipAction)

Flipping moves the contents of the back buffer to the front buffer, either by copying or by moving the video pointer.

**Parameters:**flipAction - an integer value describing the flipping action for the contents of the back buffer. This should be one of the values of the BufferCapabilities.FlipContents property. **Throws:** [IllegalStateException](http://docs.google.com/java/lang/IllegalStateException.html) - if the buffers have not yet been created**See Also:**[BufferCapabilities.getFlipContents()](http://docs.google.com/java/awt/BufferCapabilities.html#getFlipContents())

### destroyBuffers

protected void **destroyBuffers**()

Destroys the buffers created through this object

### getCapabilities

public [BufferCapabilities](http://docs.google.com/java/awt/BufferCapabilities.html) **getCapabilities**()

**Description copied from class:** [**BufferStrategy**](http://docs.google.com/java/awt/image/BufferStrategy.html#getCapabilities()) Returns the BufferCapabilities for this BufferStrategy.

**Specified by:**[getCapabilities](http://docs.google.com/java/awt/image/BufferStrategy.html#getCapabilities()) in class [BufferStrategy](http://docs.google.com/java/awt/image/BufferStrategy.html) **Returns:**the buffering capabilities of this strategy

### getDrawGraphics

public [Graphics](http://docs.google.com/java/awt/Graphics.html) **getDrawGraphics**()

**Description copied from class:** [**BufferStrategy**](http://docs.google.com/java/awt/image/BufferStrategy.html#getDrawGraphics()) Creates a graphics context for the drawing buffer. This method may not be synchronized for performance reasons; use of this method by multiple threads should be handled at the application level. Disposal of the graphics object obtained must be handled by the application.

**Specified by:**[getDrawGraphics](http://docs.google.com/java/awt/image/BufferStrategy.html#getDrawGraphics()) in class [BufferStrategy](http://docs.google.com/java/awt/image/BufferStrategy.html) **Returns:**the graphics on the drawing buffer. This method may not be synchronized for performance reasons; use of this method by multiple threads should be handled at the application level. Disposal of the graphics object must be handled by the application.

### revalidate

protected void **revalidate**()

Restore the drawing buffer if it has been lost

### contentsLost

public boolean **contentsLost**()

**Description copied from class:** [**BufferStrategy**](http://docs.google.com/java/awt/image/BufferStrategy.html#contentsLost()) Returns whether the drawing buffer was lost since the last call to getDrawGraphics. Since the buffers in a buffer strategy are usually type VolatileImage, they may become lost. For a discussion on lost buffers, see VolatileImage.

**Specified by:**[contentsLost](http://docs.google.com/java/awt/image/BufferStrategy.html#contentsLost()) in class [BufferStrategy](http://docs.google.com/java/awt/image/BufferStrategy.html) **Returns:**whether the drawing buffer was lost since the last call to getDrawGraphics**See Also:**[VolatileImage](http://docs.google.com/java/awt/image/VolatileImage.html)

### contentsRestored

public boolean **contentsRestored**()

**Description copied from class:** [**BufferStrategy**](http://docs.google.com/java/awt/image/BufferStrategy.html#contentsRestored()) Returns whether the drawing buffer was recently restored from a lost state and reinitialized to the default background color (white). Since the buffers in a buffer strategy are usually type VolatileImage, they may become lost. If a surface has been recently restored from a lost state since the last call to getDrawGraphics, it may require repainting. For a discussion on lost buffers, see VolatileImage.

**Specified by:**[contentsRestored](http://docs.google.com/java/awt/image/BufferStrategy.html#contentsRestored()) in class [BufferStrategy](http://docs.google.com/java/awt/image/BufferStrategy.html) **Returns:**whether the drawing buffer was recently restored from a lost state and reinitialized to the default background color (white)**See Also:**[VolatileImage](http://docs.google.com/java/awt/image/VolatileImage.html)

### show

public void **show**()

Makes the next available buffer visible by either blitting or flipping.

**Specified by:**[show](http://docs.google.com/java/awt/image/BufferStrategy.html#show()) in class [BufferStrategy](http://docs.google.com/java/awt/image/BufferStrategy.html)

### dispose

public void **dispose**()

Releases system resources currently consumed by this BufferStrategy and removes it from the associated Component. After invoking this method, getBufferStrategy will return null. Trying to use a BufferStrategy after it has been disposed will result in undefined behavior.

**Overrides:**[dispose](http://docs.google.com/java/awt/image/BufferStrategy.html#dispose()) in class [BufferStrategy](http://docs.google.com/java/awt/image/BufferStrategy.html) **Since:** 1.6 **See Also:**[Component.createBufferStrategy(int)](http://docs.google.com/java/awt/Component.html#createBufferStrategy(int)), [Component.getBufferStrategy()](http://docs.google.com/java/awt/Component.html#getBufferStrategy())

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/Component.FlipBufferStrategy.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/Component.BltBufferStrategy.html)   [**NEXT CLASS**](http://docs.google.com/java/awt/ComponentOrientation.html) | [**FRAMES**](http://docs.google.com/index.html?java/awt/Component.FlipBufferStrategy.html)    [**NO FRAMES**](http://docs.google.com/Component.FlipBufferStrategy.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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