| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/ColorConvertOp.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/ByteLookupTable.html)   [**NEXT CLASS**](http://docs.google.com/java/awt/image/ColorModel.html) | [**FRAMES**](http://docs.google.com/index.html?java/awt/image/ColorConvertOp.html)    [**NO FRAMES**](http://docs.google.com/ColorConvertOp.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | FIELD | [CONSTR](#3znysh7) | [METHOD](#2et92p0) | DETAIL: FIELD | [CONSTR](#3dy6vkm) | [METHOD](#3rdcrjn) |

## **java.awt.image**

Class ColorConvertOp

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

**All Implemented Interfaces:** [BufferedImageOp](http://docs.google.com/java/awt/image/BufferedImageOp.html), [RasterOp](http://docs.google.com/java/awt/image/RasterOp.html)

public class **ColorConvertOp**extends [Object](http://docs.google.com/java/lang/Object.html)implements [BufferedImageOp](http://docs.google.com/java/awt/image/BufferedImageOp.html), [RasterOp](http://docs.google.com/java/awt/image/RasterOp.html)

This class performs a pixel-by-pixel color conversion of the data in the source image. The resulting color values are scaled to the precision of the destination image. Color conversion can be specified via an array of ColorSpace objects or an array of ICC\_Profile objects.

If the source is a BufferedImage with premultiplied alpha, the color components are divided by the alpha component before color conversion. If the destination is a BufferedImage with premultiplied alpha, the color components are multiplied by the alpha component after conversion. Rasters are treated as having no alpha channel, i.e. all bands are color bands.

If a RenderingHints object is specified in the constructor, the color rendering hint and the dithering hint may be used to control color conversion.

Note that Source and Destination may be the same object.

**See Also:**[RenderingHints.KEY\_COLOR\_RENDERING](http://docs.google.com/java/awt/RenderingHints.html#KEY_COLOR_RENDERING), [RenderingHints.KEY\_DITHERING](http://docs.google.com/java/awt/RenderingHints.html#KEY_DITHERING)

| **Constructor Summary** | |
| --- | --- |
| [**ColorConvertOp**](http://docs.google.com/java/awt/image/ColorConvertOp.html#ColorConvertOp(java.awt.color.ColorSpace,%20java.awt.color.ColorSpace,%20java.awt.RenderingHints))([ColorSpace](http://docs.google.com/java/awt/color/ColorSpace.html) srcCspace, [ColorSpace](http://docs.google.com/java/awt/color/ColorSpace.html) dstCspace, [RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) hints)            Constructs a new ColorConvertOp from two ColorSpace objects. |
| [**ColorConvertOp**](http://docs.google.com/java/awt/image/ColorConvertOp.html#ColorConvertOp(java.awt.color.ColorSpace,%20java.awt.RenderingHints))([ColorSpace](http://docs.google.com/java/awt/color/ColorSpace.html) cspace, [RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) hints)            Constructs a new ColorConvertOp from a ColorSpace object. |
| [**ColorConvertOp**](http://docs.google.com/java/awt/image/ColorConvertOp.html#ColorConvertOp(java.awt.color.ICC_Profile%5B%5D,%20java.awt.RenderingHints))([ICC\_Profile](http://docs.google.com/java/awt/color/ICC_Profile.html)[] profiles, [RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) hints)            Constructs a new ColorConvertOp from an array of ICC\_Profiles. |
| [**ColorConvertOp**](http://docs.google.com/java/awt/image/ColorConvertOp.html#ColorConvertOp(java.awt.RenderingHints))([RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) hints)            Constructs a new ColorConvertOp which will convert from a source color space to a destination color space. |

| **Method Summary** | |
| --- | --- |
| [BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) | [**createCompatibleDestImage**](http://docs.google.com/java/awt/image/ColorConvertOp.html#createCompatibleDestImage(java.awt.image.BufferedImage,%20java.awt.image.ColorModel))([BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) src, [ColorModel](http://docs.google.com/java/awt/image/ColorModel.html) destCM)            Creates a zeroed destination image with the correct size and number of bands, given this source. |
| [WritableRaster](http://docs.google.com/java/awt/image/WritableRaster.html) | [**createCompatibleDestRaster**](http://docs.google.com/java/awt/image/ColorConvertOp.html#createCompatibleDestRaster(java.awt.image.Raster))([Raster](http://docs.google.com/java/awt/image/Raster.html) src)            Creates a zeroed destination Raster with the correct size and number of bands, given this source. |
| [BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) | [**filter**](http://docs.google.com/java/awt/image/ColorConvertOp.html#filter(java.awt.image.BufferedImage,%20java.awt.image.BufferedImage))([BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) src, [BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) dest)            ColorConverts the source BufferedImage. |
| [WritableRaster](http://docs.google.com/java/awt/image/WritableRaster.html) | [**filter**](http://docs.google.com/java/awt/image/ColorConvertOp.html#filter(java.awt.image.Raster,%20java.awt.image.WritableRaster))([Raster](http://docs.google.com/java/awt/image/Raster.html) src, [WritableRaster](http://docs.google.com/java/awt/image/WritableRaster.html) dest)            ColorConverts the image data in the source Raster. |
| [Rectangle2D](http://docs.google.com/java/awt/geom/Rectangle2D.html) | [**getBounds2D**](http://docs.google.com/java/awt/image/ColorConvertOp.html#getBounds2D(java.awt.image.BufferedImage))([BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) src)            Returns the bounding box of the destination, given this source. |
| [Rectangle2D](http://docs.google.com/java/awt/geom/Rectangle2D.html) | [**getBounds2D**](http://docs.google.com/java/awt/image/ColorConvertOp.html#getBounds2D(java.awt.image.Raster))([Raster](http://docs.google.com/java/awt/image/Raster.html) src)            Returns the bounding box of the destination, given this source. |
| [ICC\_Profile](http://docs.google.com/java/awt/color/ICC_Profile.html)[] | [**getICC\_Profiles**](http://docs.google.com/java/awt/image/ColorConvertOp.html#getICC_Profiles())()            Returns the array of ICC\_Profiles used to construct this ColorConvertOp. |
| [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) | [**getPoint2D**](http://docs.google.com/java/awt/image/ColorConvertOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D))([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt, [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)            Returns the location of the destination point given a point in the source. |
| [RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) | [**getRenderingHints**](http://docs.google.com/java/awt/image/ColorConvertOp.html#getRenderingHints())()            Returns the rendering hints used by this op. |

| **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)) |

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

### ColorConvertOp

public **ColorConvertOp**([RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) hints)

Constructs a new ColorConvertOp which will convert from a source color space to a destination color space. The RenderingHints argument may be null. This Op can be used only with BufferedImages, and will convert directly from the ColorSpace of the source image to that of the destination. The destination argument of the filter method cannot be specified as null.

**Parameters:**hints - the RenderingHints object used to control the color conversion, or null

### ColorConvertOp

public **ColorConvertOp**([ColorSpace](http://docs.google.com/java/awt/color/ColorSpace.html) cspace,  
 [RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) hints)

Constructs a new ColorConvertOp from a ColorSpace object. The RenderingHints argument may be null. This Op can be used only with BufferedImages, and is primarily useful when the [filter](http://docs.google.com/java/awt/image/ColorConvertOp.html#filter(java.awt.image.BufferedImage,%20java.awt.image.BufferedImage)) method is invoked with a destination argument of null. In that case, the ColorSpace defines the destination color space for the destination created by the filter method. Otherwise, the ColorSpace defines an intermediate space to which the source is converted before being converted to the destination space.

**Parameters:**cspace - defines the destination ColorSpace or an intermediate ColorSpacehints - the RenderingHints object used to control the color conversion, or null **Throws:** [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - if cspace is null

### ColorConvertOp

public **ColorConvertOp**([ColorSpace](http://docs.google.com/java/awt/color/ColorSpace.html) srcCspace,  
 [ColorSpace](http://docs.google.com/java/awt/color/ColorSpace.html) dstCspace,  
 [RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) hints)

Constructs a new ColorConvertOp from two ColorSpace objects. The RenderingHints argument may be null. This Op is primarily useful for calling the filter method on Rasters, in which case the two ColorSpaces define the operation to be performed on the Rasters. In that case, the number of bands in the source Raster must match the number of components in srcCspace, and the number of bands in the destination Raster must match the number of components in dstCspace. For BufferedImages, the two ColorSpaces define intermediate spaces through which the source is converted before being converted to the destination space.

**Parameters:**srcCspace - the source ColorSpacedstCspace - the destination ColorSpacehints - the RenderingHints object used to control the color conversion, or null **Throws:** [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - if either srcCspace or dstCspace is null

### ColorConvertOp

public **ColorConvertOp**([ICC\_Profile](http://docs.google.com/java/awt/color/ICC_Profile.html)[] profiles,  
 [RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) hints)

Constructs a new ColorConvertOp from an array of ICC\_Profiles. The RenderingHints argument may be null. The sequence of profiles may include profiles that represent color spaces, profiles that represent effects, etc. If the whole sequence does not represent a well-defined color conversion, an exception is thrown.

For BufferedImages, if the ColorSpace of the source BufferedImage does not match the requirements of the first profile in the array, the first conversion is to an appropriate ColorSpace. If the requirements of the last profile in the array are not met by the ColorSpace of the destination BufferedImage, the last conversion is to the destination's ColorSpace.

For Rasters, the number of bands in the source Raster must match the requirements of the first profile in the array, and the number of bands in the destination Raster must match the requirements of the last profile in the array. The array must have at least two elements or calling the filter method for Rasters will throw an IllegalArgumentException.

**Parameters:**profiles - the array of ICC\_Profile objectshints - the RenderingHints object used to control the color conversion, or null **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - when the profile sequence does not specify a well-defined color conversion [NullPointerException](http://docs.google.com/java/lang/NullPointerException.html) - if profiles is null

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

### getICC\_Profiles

public final [ICC\_Profile](http://docs.google.com/java/awt/color/ICC_Profile.html)[] **getICC\_Profiles**()

Returns the array of ICC\_Profiles used to construct this ColorConvertOp. Returns null if the ColorConvertOp was not constructed from such an array.

**Returns:**the array of ICC\_Profile objects of this ColorConvertOp, or null if this ColorConvertOp was not constructed with an array of ICC\_Profile objects.

### filter

public final [BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) **filter**([BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) src,  
 [BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) dest)

ColorConverts the source BufferedImage. If the destination image is null, a BufferedImage will be created with an appropriate ColorModel.

**Specified by:**[filter](http://docs.google.com/java/awt/image/BufferedImageOp.html#filter(java.awt.image.BufferedImage,%20java.awt.image.BufferedImage)) in interface [BufferedImageOp](http://docs.google.com/java/awt/image/BufferedImageOp.html) **Parameters:**src - the source BufferedImage to be converteddest - the destination BufferedImage, or null **Returns:**dest color converted from src or a new, converted BufferedImage if dest is null **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if dest is null and this op was constructed using the constructor which takes only a RenderingHints argument, since the operation is ill defined.

### filter

public final [WritableRaster](http://docs.google.com/java/awt/image/WritableRaster.html) **filter**([Raster](http://docs.google.com/java/awt/image/Raster.html) src,  
 [WritableRaster](http://docs.google.com/java/awt/image/WritableRaster.html) dest)

ColorConverts the image data in the source Raster. If the destination Raster is null, a new Raster will be created. The number of bands in the source and destination Rasters must meet the requirements explained above. The constructor used to create this ColorConvertOp must have provided enough information to define both source and destination color spaces. See above. Otherwise, an exception is thrown.

**Specified by:**[filter](http://docs.google.com/java/awt/image/RasterOp.html#filter(java.awt.image.Raster,%20java.awt.image.WritableRaster)) in interface [RasterOp](http://docs.google.com/java/awt/image/RasterOp.html) **Parameters:**src - the source Raster to be converteddest - the destination WritableRaster, or null **Returns:**dest color converted from src or a new, converted WritableRaster if dest is null **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if the number of source or destination bands is incorrect, the source or destination color spaces are undefined, or this op was constructed with one of the constructors that applies only to operations on BufferedImages.

### getBounds2D

public final [Rectangle2D](http://docs.google.com/java/awt/geom/Rectangle2D.html) **getBounds2D**([BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) src)

Returns the bounding box of the destination, given this source. Note that this will be the same as the the bounding box of the source.

**Specified by:**[getBounds2D](http://docs.google.com/java/awt/image/BufferedImageOp.html#getBounds2D(java.awt.image.BufferedImage)) in interface [BufferedImageOp](http://docs.google.com/java/awt/image/BufferedImageOp.html) **Parameters:**src - the source BufferedImage **Returns:**a Rectangle2D that is the bounding box of the destination, given the specified src

### getBounds2D

public final [Rectangle2D](http://docs.google.com/java/awt/geom/Rectangle2D.html) **getBounds2D**([Raster](http://docs.google.com/java/awt/image/Raster.html) src)

Returns the bounding box of the destination, given this source. Note that this will be the same as the the bounding box of the source.

**Specified by:**[getBounds2D](http://docs.google.com/java/awt/image/RasterOp.html#getBounds2D(java.awt.image.Raster)) in interface [RasterOp](http://docs.google.com/java/awt/image/RasterOp.html) **Parameters:**src - the source Raster **Returns:**a Rectangle2D that is the bounding box of the destination, given the specified src

### createCompatibleDestImage

public [BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) **createCompatibleDestImage**([BufferedImage](http://docs.google.com/java/awt/image/BufferedImage.html) src,  
 [ColorModel](http://docs.google.com/java/awt/image/ColorModel.html) destCM)

Creates a zeroed destination image with the correct size and number of bands, given this source.

**Specified by:**[createCompatibleDestImage](http://docs.google.com/java/awt/image/BufferedImageOp.html#createCompatibleDestImage(java.awt.image.BufferedImage,%20java.awt.image.ColorModel)) in interface [BufferedImageOp](http://docs.google.com/java/awt/image/BufferedImageOp.html) **Parameters:**src - Source image for the filter operation.destCM - ColorModel of the destination. If null, an appropriate ColorModel will be used. **Returns:**a BufferedImage with the correct size and number of bands from the specified src. **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if destCM is null and this ColorConvertOp was created without any ICC\_Profile or ColorSpace defined for the destination

### createCompatibleDestRaster

public [WritableRaster](http://docs.google.com/java/awt/image/WritableRaster.html) **createCompatibleDestRaster**([Raster](http://docs.google.com/java/awt/image/Raster.html) src)

Creates a zeroed destination Raster with the correct size and number of bands, given this source.

**Specified by:**[createCompatibleDestRaster](http://docs.google.com/java/awt/image/RasterOp.html#createCompatibleDestRaster(java.awt.image.Raster)) in interface [RasterOp](http://docs.google.com/java/awt/image/RasterOp.html) **Parameters:**src - the specified Raster **Returns:**a WritableRaster with the correct size and number of bands from the specified src **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if this ColorConvertOp was created without sufficient information to define the dst and src color spaces

### getPoint2D

public final [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) **getPoint2D**([Point2D](http://docs.google.com/java/awt/geom/Point2D.html) srcPt,  
 [Point2D](http://docs.google.com/java/awt/geom/Point2D.html) dstPt)

Returns the location of the destination point given a point in the source. If dstPt is non-null, it will be used to hold the return value. Note that for this class, the destination point will be the same as the source point.

**Specified by:**[getPoint2D](http://docs.google.com/java/awt/image/BufferedImageOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D)) in interface [BufferedImageOp](http://docs.google.com/java/awt/image/BufferedImageOp.html)**Specified by:**[getPoint2D](http://docs.google.com/java/awt/image/RasterOp.html#getPoint2D(java.awt.geom.Point2D,%20java.awt.geom.Point2D)) in interface [RasterOp](http://docs.google.com/java/awt/image/RasterOp.html) **Parameters:**srcPt - the specified source Point2DdstPt - the destination Point2D **Returns:**dstPt after setting its location to be the same as srcPt

### getRenderingHints

public final [RenderingHints](http://docs.google.com/java/awt/RenderingHints.html) **getRenderingHints**()

Returns the rendering hints used by this op.

**Specified by:**[getRenderingHints](http://docs.google.com/java/awt/image/BufferedImageOp.html#getRenderingHints()) in interface [BufferedImageOp](http://docs.google.com/java/awt/image/BufferedImageOp.html)**Specified by:**[getRenderingHints](http://docs.google.com/java/awt/image/RasterOp.html#getRenderingHints()) in interface [RasterOp](http://docs.google.com/java/awt/image/RasterOp.html) **Returns:**the RenderingHints object of this ColorConvertOp

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/ColorConvertOp.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/ByteLookupTable.html)   [**NEXT CLASS**](http://docs.google.com/java/awt/image/ColorModel.html) | [**FRAMES**](http://docs.google.com/index.html?java/awt/image/ColorConvertOp.html)    [**NO FRAMES**](http://docs.google.com/ColorConvertOp.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | FIELD | [CONSTR](#3znysh7) | [METHOD](#2et92p0) | DETAIL: FIELD | [CONSTR](#3dy6vkm) | [METHOD](#3rdcrjn) |

[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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