| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/ColorSpace.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/color/CMMException.html)   [**NEXT CLASS**](http://docs.google.com/java/awt/color/ICC_ColorSpace.html) | [**FRAMES**](http://docs.google.com/index.html?java/awt/color/ColorSpace.html)    [**NO FRAMES**](http://docs.google.com/ColorSpace.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#3znysh7) | [CONSTR](#2et92p0) | [METHOD](#tyjcwt) | DETAIL: [FIELD](#1t3h5sf) | [CONSTR](#2grqrue) | [METHOD](#3fwokq0) |

## **java.awt.color**

Class ColorSpace

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

**All Implemented Interfaces:** [Serializable](http://docs.google.com/java/io/Serializable.html) **Direct Known Subclasses:** [ICC\_ColorSpace](http://docs.google.com/java/awt/color/ICC_ColorSpace.html)

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

This abstract class is used to serve as a color space tag to identify the specific color space of a Color object or, via a ColorModel object, of an Image, a BufferedImage, or a GraphicsDevice. It contains methods that transform colors in a specific color space to/from sRGB and to/from a well-defined CIEXYZ color space.

For purposes of the methods in this class, colors are represented as arrays of color components represented as floats in a normalized range defined by each ColorSpace. For many ColorSpaces (e.g. sRGB), this range is 0.0 to 1.0. However, some ColorSpaces have components whose values have a different range. Methods are provided to inquire per component minimum and maximum normalized values.

Several variables are defined for purposes of referring to color space types (e.g. TYPE\_RGB, TYPE\_XYZ, etc.) and to refer to specific color spaces (e.g. CS\_sRGB and CS\_CIEXYZ). sRGB is a proposed standard RGB color space. For more information, see <http://www.w3.org/pub/WWW/Graphics/Color/sRGB.html>.

The purpose of the methods to transform to/from the well-defined CIEXYZ color space is to support conversions between any two color spaces at a reasonably high degree of accuracy. It is expected that particular implementations of subclasses of ColorSpace (e.g. ICC\_ColorSpace) will support high performance conversion based on underlying platform color management systems.

The CS\_CIEXYZ space used by the toCIEXYZ/fromCIEXYZ methods can be described as follows:

  CIEXYZ  
  viewing illuminance: 200 lux  
  viewing white point: CIE D50  
  media white point: "that of a perfectly reflecting diffuser" -- D50   
  media black point: 0 lux or 0 Reflectance  
  flare: 1 percent  
  surround: 20percent of the media white point  
  media description: reflection print (i.e., RLAB, Hunt viewing media)  
  note: For developers creating an ICC profile for this conversion  
  space, the following is applicable. Use a simple Von Kries  
  white point adaptation folded into the 3X3 matrix parameters  
  and fold the flare and surround effects into the three  
  one-dimensional lookup tables (assuming one uses the minimal  
  model for monitors).

**See Also:**[ICC\_ColorSpace](http://docs.google.com/java/awt/color/ICC_ColorSpace.html), [Serialized Form](http://docs.google.com/serialized-form.html#java.awt.color.ColorSpace)

| **Field Summary** | |
| --- | --- |
| static int | [**CS\_CIEXYZ**](http://docs.google.com/java/awt/color/ColorSpace.html#CS_CIEXYZ)            The CIEXYZ conversion color space defined above. |
| static int | [**CS\_GRAY**](http://docs.google.com/java/awt/color/ColorSpace.html#CS_GRAY)            The built-in linear gray scale color space. |
| static int | [**CS\_LINEAR\_RGB**](http://docs.google.com/java/awt/color/ColorSpace.html#CS_LINEAR_RGB)            A built-in linear RGB color space. |
| static int | [**CS\_PYCC**](http://docs.google.com/java/awt/color/ColorSpace.html#CS_PYCC)            The Photo YCC conversion color space. |
| static int | [**CS\_sRGB**](http://docs.google.com/java/awt/color/ColorSpace.html#CS_sRGB)            The sRGB color space defined at <http://www.w3.org/pub/WWW/Graphics/Color/sRGB.html>. |
| static int | [**TYPE\_2CLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_2CLR)            Generic 2 component color spaces. |
| static int | [**TYPE\_3CLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_3CLR)            Generic 3 component color spaces. |
| static int | [**TYPE\_4CLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_4CLR)            Generic 4 component color spaces. |
| static int | [**TYPE\_5CLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_5CLR)            Generic 5 component color spaces. |
| static int | [**TYPE\_6CLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_6CLR)            Generic 6 component color spaces. |
| static int | [**TYPE\_7CLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_7CLR)            Generic 7 component color spaces. |
| static int | [**TYPE\_8CLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_8CLR)            Generic 8 component color spaces. |
| static int | [**TYPE\_9CLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_9CLR)            Generic 9 component color spaces. |
| static int | [**TYPE\_ACLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_ACLR)            Generic 10 component color spaces. |
| static int | [**TYPE\_BCLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_BCLR)            Generic 11 component color spaces. |
| static int | [**TYPE\_CCLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_CCLR)            Generic 12 component color spaces. |
| static int | [**TYPE\_CMY**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_CMY)            Any of the family of CMY color spaces. |
| static int | [**TYPE\_CMYK**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_CMYK)            Any of the family of CMYK color spaces. |
| static int | [**TYPE\_DCLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_DCLR)            Generic 13 component color spaces. |
| static int | [**TYPE\_ECLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_ECLR)            Generic 14 component color spaces. |
| static int | [**TYPE\_FCLR**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_FCLR)            Generic 15 component color spaces. |
| static int | [**TYPE\_GRAY**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_GRAY)            Any of the family of GRAY color spaces. |
| static int | [**TYPE\_HLS**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_HLS)            Any of the family of HLS color spaces. |
| static int | [**TYPE\_HSV**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_HSV)            Any of the family of HSV color spaces. |
| static int | [**TYPE\_Lab**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_Lab)            Any of the family of Lab color spaces. |
| static int | [**TYPE\_Luv**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_Luv)            Any of the family of Luv color spaces. |
| static int | [**TYPE\_RGB**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_RGB)            Any of the family of RGB color spaces. |
| static int | [**TYPE\_XYZ**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_XYZ)            Any of the family of XYZ color spaces. |
| static int | [**TYPE\_YCbCr**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_YCbCr)            Any of the family of YCbCr color spaces. |
| static int | [**TYPE\_Yxy**](http://docs.google.com/java/awt/color/ColorSpace.html#TYPE_Yxy)            Any of the family of Yxy color spaces. |

| **Constructor Summary** | |
| --- | --- |
| protected | [**ColorSpace**](http://docs.google.com/java/awt/color/ColorSpace.html#ColorSpace(int,%20int))(int type, int numcomponents)            Constructs a ColorSpace object given a color space type and the number of components. |

| **Method Summary** | |
| --- | --- |
| abstract  float[] | [**fromCIEXYZ**](http://docs.google.com/java/awt/color/ColorSpace.html#fromCIEXYZ(float%5B%5D))(float[] colorvalue)            Transforms a color value assumed to be in the CS\_CIEXYZ conversion color space into this ColorSpace. |
| abstract  float[] | [**fromRGB**](http://docs.google.com/java/awt/color/ColorSpace.html#fromRGB(float%5B%5D))(float[] rgbvalue)            Transforms a color value assumed to be in the default CS\_sRGB color space into this ColorSpace. |
| static [ColorSpace](http://docs.google.com/java/awt/color/ColorSpace.html) | [**getInstance**](http://docs.google.com/java/awt/color/ColorSpace.html#getInstance(int))(int colorspace)            Returns a ColorSpace representing one of the specific predefined color spaces. |
| float | [**getMaxValue**](http://docs.google.com/java/awt/color/ColorSpace.html#getMaxValue(int))(int component)            Returns the maximum normalized color component value for the specified component. |
| float | [**getMinValue**](http://docs.google.com/java/awt/color/ColorSpace.html#getMinValue(int))(int component)            Returns the minimum normalized color component value for the specified component. |
| [String](http://docs.google.com/java/lang/String.html) | [**getName**](http://docs.google.com/java/awt/color/ColorSpace.html#getName(int))(int idx)            Returns the name of the component given the component index. |
| int | [**getNumComponents**](http://docs.google.com/java/awt/color/ColorSpace.html#getNumComponents())()            Returns the number of components of this ColorSpace. |
| int | [**getType**](http://docs.google.com/java/awt/color/ColorSpace.html#getType())()            Returns the color space type of this ColorSpace (for example TYPE\_RGB, TYPE\_XYZ, ...). |
| boolean | [**isCS\_sRGB**](http://docs.google.com/java/awt/color/ColorSpace.html#isCS_sRGB())()            Returns true if the ColorSpace is CS\_sRGB. |
| abstract  float[] | [**toCIEXYZ**](http://docs.google.com/java/awt/color/ColorSpace.html#toCIEXYZ(float%5B%5D))(float[] colorvalue)            Transforms a color value assumed to be in this ColorSpace into the CS\_CIEXYZ conversion color space. |
| abstract  float[] | [**toRGB**](http://docs.google.com/java/awt/color/ColorSpace.html#toRGB(float%5B%5D))(float[] colorvalue)            Transforms a color value assumed to be in this ColorSpace into a value in the default CS\_sRGB color space. |

| **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** |
| --- |

### TYPE\_XYZ

public static final int **TYPE\_XYZ**

Any of the family of XYZ color spaces.

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

### TYPE\_Lab

public static final int **TYPE\_Lab**

Any of the family of Lab color spaces.

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

### TYPE\_Luv

public static final int **TYPE\_Luv**

Any of the family of Luv color spaces.

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

### TYPE\_YCbCr

public static final int **TYPE\_YCbCr**

Any of the family of YCbCr color spaces.

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

### TYPE\_Yxy

public static final int **TYPE\_Yxy**

Any of the family of Yxy color spaces.

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

### TYPE\_RGB

public static final int **TYPE\_RGB**

Any of the family of RGB color spaces.

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

### TYPE\_GRAY

public static final int **TYPE\_GRAY**

Any of the family of GRAY color spaces.

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

### TYPE\_HSV

public static final int **TYPE\_HSV**

Any of the family of HSV color spaces.

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

### TYPE\_HLS

public static final int **TYPE\_HLS**

Any of the family of HLS color spaces.

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

### TYPE\_CMYK

public static final int **TYPE\_CMYK**

Any of the family of CMYK color spaces.

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

### TYPE\_CMY

public static final int **TYPE\_CMY**

Any of the family of CMY color spaces.

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

### TYPE\_2CLR

public static final int **TYPE\_2CLR**

Generic 2 component color spaces.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.color.ColorSpace.TYPE_2CLR)

### TYPE\_3CLR

public static final int **TYPE\_3CLR**

Generic 3 component color spaces.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.color.ColorSpace.TYPE_3CLR)

### TYPE\_4CLR

public static final int **TYPE\_4CLR**

Generic 4 component color spaces.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.color.ColorSpace.TYPE_4CLR)

### TYPE\_5CLR

public static final int **TYPE\_5CLR**

Generic 5 component color spaces.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.color.ColorSpace.TYPE_5CLR)

### TYPE\_6CLR

public static final int **TYPE\_6CLR**

Generic 6 component color spaces.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.color.ColorSpace.TYPE_6CLR)

### TYPE\_7CLR

public static final int **TYPE\_7CLR**

Generic 7 component color spaces.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.color.ColorSpace.TYPE_7CLR)

### TYPE\_8CLR

public static final int **TYPE\_8CLR**

Generic 8 component color spaces.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.color.ColorSpace.TYPE_8CLR)

### TYPE\_9CLR

public static final int **TYPE\_9CLR**

Generic 9 component color spaces.

**See Also:**[Constant Field Values](http://docs.google.com/constant-values.html#java.awt.color.ColorSpace.TYPE_9CLR)

### TYPE\_ACLR

public static final int **TYPE\_ACLR**

Generic 10 component color spaces.

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

### TYPE\_BCLR

public static final int **TYPE\_BCLR**

Generic 11 component color spaces.

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

### TYPE\_CCLR

public static final int **TYPE\_CCLR**

Generic 12 component color spaces.

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

### TYPE\_DCLR

public static final int **TYPE\_DCLR**

Generic 13 component color spaces.

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

### TYPE\_ECLR

public static final int **TYPE\_ECLR**

Generic 14 component color spaces.

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

### TYPE\_FCLR

public static final int **TYPE\_FCLR**

Generic 15 component color spaces.

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

### CS\_sRGB

public static final int **CS\_sRGB**

The sRGB color space defined at <http://www.w3.org/pub/WWW/Graphics/Color/sRGB.html>.

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

### CS\_LINEAR\_RGB

public static final int **CS\_LINEAR\_RGB**

A built-in linear RGB color space. This space is based on the same RGB primaries as CS\_sRGB, but has a linear tone reproduction curve.

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

### CS\_CIEXYZ

public static final int **CS\_CIEXYZ**

The CIEXYZ conversion color space defined above.

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

### CS\_PYCC

public static final int **CS\_PYCC**

The Photo YCC conversion color space.

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

### CS\_GRAY

public static final int **CS\_GRAY**

The built-in linear gray scale color space.

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

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

### ColorSpace

protected **ColorSpace**(int type,  
 int numcomponents)

Constructs a ColorSpace object given a color space type and the number of components.

**Parameters:**type - one of the ColorSpace type constantsnumcomponents - the number of components in the color space

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

### getInstance

public static [ColorSpace](http://docs.google.com/java/awt/color/ColorSpace.html) **getInstance**(int colorspace)

Returns a ColorSpace representing one of the specific predefined color spaces.

**Parameters:**colorspace - a specific color space identified by one of the predefined class constants (e.g. CS\_sRGB, CS\_LINEAR\_RGB, CS\_CIEXYZ, CS\_GRAY, or CS\_PYCC) **Returns:**the requested ColorSpace object

### isCS\_sRGB

public boolean **isCS\_sRGB**()

Returns true if the ColorSpace is CS\_sRGB.

**Returns:**true if this is a CS\_sRGB color space, false if it is not

### toRGB

public abstract float[] **toRGB**(float[] colorvalue)

Transforms a color value assumed to be in this ColorSpace into a value in the default CS\_sRGB color space.

This method transforms color values using algorithms designed to produce the best perceptual match between input and output colors. In order to do colorimetric conversion of color values, you should use the toCIEXYZ method of this color space to first convert from the input color space to the CS\_CIEXYZ color space, and then use the fromCIEXYZ method of the CS\_sRGB color space to convert from CS\_CIEXYZ to the output color space. See [toCIEXYZ](http://docs.google.com/java/awt/color/ColorSpace.html#toCIEXYZ(float%5B%5D)) and [fromCIEXYZ](http://docs.google.com/java/awt/color/ColorSpace.html#fromCIEXYZ(float%5B%5D)) for further information.

**Parameters:**colorvalue - a float array with length of at least the number of components in this ColorSpace **Returns:**a float array of length 3 **Throws:** [ArrayIndexOutOfBoundsException](http://docs.google.com/java/lang/ArrayIndexOutOfBoundsException.html) - if array length is not at least the number of components in this ColorSpace

### fromRGB

public abstract float[] **fromRGB**(float[] rgbvalue)

Transforms a color value assumed to be in the default CS\_sRGB color space into this ColorSpace.

This method transforms color values using algorithms designed to produce the best perceptual match between input and output colors. In order to do colorimetric conversion of color values, you should use the toCIEXYZ method of the CS\_sRGB color space to first convert from the input color space to the CS\_CIEXYZ color space, and then use the fromCIEXYZ method of this color space to convert from CS\_CIEXYZ to the output color space. See [toCIEXYZ](http://docs.google.com/java/awt/color/ColorSpace.html#toCIEXYZ(float%5B%5D)) and [fromCIEXYZ](http://docs.google.com/java/awt/color/ColorSpace.html#fromCIEXYZ(float%5B%5D)) for further information.

**Parameters:**rgbvalue - a float array with length of at least 3 **Returns:**a float array with length equal to the number of components in this ColorSpace **Throws:** [ArrayIndexOutOfBoundsException](http://docs.google.com/java/lang/ArrayIndexOutOfBoundsException.html) - if array length is not at least 3

### toCIEXYZ

public abstract float[] **toCIEXYZ**(float[] colorvalue)

Transforms a color value assumed to be in this ColorSpace into the CS\_CIEXYZ conversion color space.

This method transforms color values using relative colorimetry, as defined by the International Color Consortium standard. This means that the XYZ values returned by this method are represented relative to the D50 white point of the CS\_CIEXYZ color space. This representation is useful in a two-step color conversion process in which colors are transformed from an input color space to CS\_CIEXYZ and then to an output color space. This representation is not the same as the XYZ values that would be measured from the given color value by a colorimeter. A further transformation is necessary to compute the XYZ values that would be measured using current CIE recommended practices. See the [toCIEXYZ](http://docs.google.com/java/awt/color/ICC_ColorSpace.html#toCIEXYZ(float%5B%5D)) method of ICC\_ColorSpace for further information.

**Parameters:**colorvalue - a float array with length of at least the number of components in this ColorSpace **Returns:**a float array of length 3 **Throws:** [ArrayIndexOutOfBoundsException](http://docs.google.com/java/lang/ArrayIndexOutOfBoundsException.html) - if array length is not at least the number of components in this ColorSpace.

### fromCIEXYZ

public abstract float[] **fromCIEXYZ**(float[] colorvalue)

Transforms a color value assumed to be in the CS\_CIEXYZ conversion color space into this ColorSpace.

This method transforms color values using relative colorimetry, as defined by the International Color Consortium standard. This means that the XYZ argument values taken by this method are represented relative to the D50 white point of the CS\_CIEXYZ color space. This representation is useful in a two-step color conversion process in which colors are transformed from an input color space to CS\_CIEXYZ and then to an output color space. The color values returned by this method are not those that would produce the XYZ value passed to the method when measured by a colorimeter. If you have XYZ values corresponding to measurements made using current CIE recommended practices, they must be converted to D50 relative values before being passed to this method. See the [fromCIEXYZ](http://docs.google.com/java/awt/color/ICC_ColorSpace.html#fromCIEXYZ(float%5B%5D)) method of ICC\_ColorSpace for further information.

**Parameters:**colorvalue - a float array with length of at least 3 **Returns:**a float array with length equal to the number of components in this ColorSpace **Throws:** [ArrayIndexOutOfBoundsException](http://docs.google.com/java/lang/ArrayIndexOutOfBoundsException.html) - if array length is not at least 3

### getType

public int **getType**()

Returns the color space type of this ColorSpace (for example TYPE\_RGB, TYPE\_XYZ, ...). The type defines the number of components of the color space and the interpretation, e.g. TYPE\_RGB identifies a color space with three components - red, green, and blue. It does not define the particular color characteristics of the space, e.g. the chromaticities of the primaries.

**Returns:**the type constant that represents the type of this ColorSpace

### getNumComponents

public int **getNumComponents**()

Returns the number of components of this ColorSpace.

**Returns:**The number of components in this ColorSpace.

### getName

public [String](http://docs.google.com/java/lang/String.html) **getName**(int idx)

Returns the name of the component given the component index.

**Parameters:**idx - the component index **Returns:**the name of the component at the specified index **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if idx is less than 0 or greater than numComponents - 1

### getMinValue

public float **getMinValue**(int component)

Returns the minimum normalized color component value for the specified component. The default implementation in this abstract class returns 0.0 for all components. Subclasses should override this method if necessary.

**Parameters:**component - the component index **Returns:**the minimum normalized component value **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if component is less than 0 or greater than numComponents - 1**Since:** 1.4

### getMaxValue

public float **getMaxValue**(int component)

Returns the maximum normalized color component value for the specified component. The default implementation in this abstract class returns 1.0 for all components. Subclasses should override this method if necessary.

**Parameters:**component - the component index **Returns:**the maximum normalized component value **Throws:** [IllegalArgumentException](http://docs.google.com/java/lang/IllegalArgumentException.html) - if component is less than 0 or greater than numComponents - 1**Since:** 1.4

| | [**Overview**](http://docs.google.com/overview-summary.html) | [**Package**](http://docs.google.com/package-summary.html) | **Class** | [**Use**](http://docs.google.com/class-use/ColorSpace.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/color/CMMException.html)   [**NEXT CLASS**](http://docs.google.com/java/awt/color/ICC_ColorSpace.html) | [**FRAMES**](http://docs.google.com/index.html?java/awt/color/ColorSpace.html)    [**NO FRAMES**](http://docs.google.com/ColorSpace.html)     [**All Classes**](http://docs.google.com/allclasses-noframe.html) |
| SUMMARY: NESTED | [FIELD](#3znysh7) | [CONSTR](#2et92p0) | [METHOD](#tyjcwt) | DETAIL: [FIELD](#1t3h5sf) | [CONSTR](#2grqrue) | [METHOD](#3fwokq0) |

[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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