## Reference Manual

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## **Contents**

1	Nam	nespace	Index	1
	1.1	Names	pace List	1
2	Hier	archica	Index	3
	2.1	Class	ierarchy	3
3	Clas	ss Index		5
	3.1	Class	ist	5
4	Nam	nespace	Documentation	7
	4.1	img Na	nespace Reference	7
		4.1.1	Detailed Description	7
		4.1.2	Function Documentation	7
			4.1.2.1 operator <<	7
			4.1.2.2 operator>>	8
5	Clas	ss Docu	nentation	9
	5.1	img::C	lor Class Reference	9
		5.1.1	Detailed Description	9
		5.1.2	Constructor & Destructor Documentation	9
			5.1.2.1 Color	9
			5.1.2.2 ~Color	10
	5.2	img::E	sylmage Class Reference	10
		5.2.1	Detailed Description	11
		5.2.2	Constructor & Destructor Documentation	11
			5.2.2.1 Easylmage	11
			5.2.2.2 Easylmage	11
		5.2.3	Member Function Documentation	11
			5.2.3.1 clear	11
			5.2.3.2 draw_line	11
			5.2.3.3 get_height	12
			5.2.3.4 get_width	12
			5.2.2.5 operator()	10

ii CONTENTS

Index		15	5
		3.3.3.2 What	,
		5.3.3.2 what	
		5.3.3.1 operator=	1
	5.3.3	Member Function Documentation	1
		5.3.2.2 UnsupportedFileTypeException	ļ
		5.3.2.1 UnsupportedFileTypeException	ļ
	5.3.2	Constructor & Destructor Documentation	ļ
	5.3.1	Detailed Description	ļ
5.3	img::U	supportedFileTypeException Class Reference	3
		5.2.4.1 operator>>	3
	5.2.4	Friends And Related Function Documentation	3
		5.2.3.7 operator=	3
		5.2.3.6 operator()	2

# Namespace Index

1.	1	Nan	nespa	ace	List
		HUI	ICOP	400	

Here is a list	t of all documented namespaces with brief descriptions:	
img		
	The namespace of the Easylmage class	7

2 Namespace Index

# **Hierarchical Index**

## 2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

img::Color	 ,
img::EasyImage	 10
std::exception	
img::UnsupportedFileTypeException	 . 13

4 Hierarchical Index

# **Class Index**

## 3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

img::Color	
This class represents the color of a pixel in an img::EasyImage object	9
img::Easylmage	
This class implements a 'minor' image-library that supports basic operations such as setting and	
retrieving a pixel, and drawing a line	10
img::UnsupportedFileTypeException	
The exception that is thrown when an error occurs while trying to read an img::EasyImage from	
an input stream	13

6 Class Index

## **Namespace Documentation**

## 4.1 img Namespace Reference

The namespace of the Easylmage class.

#### **Classes**

· class Color

This class represents the color of a pixel in an img::Easylmage object.

• class UnsupportedFileTypeException

The exception that is thrown when an error occurs while trying to read an img::EasyImage from an input stream.

class Easylmage

This class implements a 'minor' image-library that supports basic operations such as setting and retrieving a pixel, and drawing a line.

## **Functions**

• std::ostream & operator<< (std::ostream &out, EasyImage const &image)

Writes an img::Easylmage to an output stream in the BMP file format.

• std::istream & operator>> (std::istream &in, EasyImage &image)

Reads an img::Easylmage from an input stream.

## 4.1.1 Detailed Description

The namespace of the Easylmage class.

## 4.1.2 Function Documentation

4.1.2.1 std::ostream & img::operator<< ( std::ostream & out, Easylmage const & image )

Writes an img::EasyImage to an output stream in the BMP file format.

#### **Parameters**

out	the std::ostream to write the BMP file to.
image	the img::EasyImage to be written to the output stream

## Returns

a reference to the output stream the image was written to

Definition at line 260 of file EasyImage.cc.

4.1.2.2 std::istream & img::operator>> ( std::istream & in, EasyImage & image )

Reads an img::Easylmage from an input stream.

Please note: at this point only a limited subset of BMP-file format is supported. In order to correctly read a BMP file it must:

· Be an uncompressed bitmap

Only contain one plane

Use 24bits/pixel If the BMP file-format is not supported an UnsupportedFileTypeException is thrown

## **Parameters**

in	the input stream to read the bitmap from
image	the Easylmage object in which the bitmap must be stored

## Returns

a reference to the input stream from which the bitmap was read

Definition at line 325 of file EasyImage.cc.

## **Class Documentation**

## 5.1 img::Color Class Reference

This class represents the color of a pixel in an img::Easylmage object.

```
#include <EasyImage.h>
```

## **Public Member Functions**

• Color ()

Default Constructor.

• Color (uint8\_t r, uint8\_t g, uint8\_t b)

Constructs a Color with the given intensities.

• ∼Color ()

## **Public Attributes**

• uint8\_t blue

The intensity of the blue color component.

• uint8\_t green

The intensity of the green color component.

• uint8\_t red

The intensity of the red color component.

## 5.1.1 Detailed Description

This class represents the color of a pixel in an img::Easylmage object.

Definition at line 31 of file Easylmage.h.

## 5.1.2 Constructor & Destructor Documentation

```
5.1.2.1 img::Color::Color ( uint8_t r, uint8_t g, uint8_t b )
```

Constructs a Color with the given intensities.

10 Class Documentation

#### **Parameters**

r	The red color component
g	The green color component
b	The blue color component

Definition at line 116 of file EasyImage.cc.

```
5.1.2.2 img::Color:: ∼Color ( )
```

Destructor

Definition at line 120 of file EasyImage.cc.

The documentation for this class was generated from the following files:

- /Users/bartsas/Courses/Graphics/SVN/code/cxx/easyimage/EasyImage.h
- /Users/bartsas/Courses/Graphics/SVN/code/cxx/easyimage/EasyImage.cc

## 5.2 img::Easylmage Class Reference

This class implements a 'minor' image-library that supports basic operations such as setting and retrieving a pixel, and drawing a line.

```
#include <EasyImage.h>
```

## **Public Member Functions**

· Easylmage ()

Default Constructor. Creates a zero-pixel image.

• Easylmage (unsigned int width, unsigned int height, Color color=Color())

Constructor: creates a new EasyImage of the specified width and height.

• Easylmage (Easylmage const &img)

Copy Constructor.

virtual ∼Easylmage ()

Destructor.

Easylmage & operator= (Easylmage const &img)

Assignment operator. Allows an easyImage to be assigned to another easyImage.

• unsigned int get\_width () const

Returns the width of the image.

• unsigned int get\_height () const

Returns the height of the image.

• Color & operator() (unsigned int x, unsigned int y)

Function operator. This operator returns a reference to a particular pixel of the image.

Color const & operator() (unsigned int x, unsigned int y) const

Function operator. This operator returns a const reference to a particular pixel of the image.

void clear (Color color=Color())

Fills the image with a background of a specified color. Defaults to black.

• void draw\_line (unsigned int x0, unsigned int y0, unsigned int x1, unsigned int y1, Color color)

Draws a line from pixel (x0,y0) to pixel (x1,y1) in the specified color.

## **Friends**

• std::istream & operator>> (std::istream &in, EasyImage &image)

Reads an img::EasyImage from an input stream.

## 5.2.1 Detailed Description

This class implements a 'minor' image-library that supports basic operations such as setting and retrieving a pixel, and drawing a line.

Definition at line 126 of file EasyImage.h.

## 5.2.2 Constructor & Destructor Documentation

5.2.2.1 img::Easylmage::Easylmage ( unsigned int width, unsigned int height, Color color = Color () )

Constructor: creates a new Easylmage of the specified width and height.

#### **Parameters**

width	the width of the image
height	the height of the image
color	(optional) the background color of the image

Definition at line 151 of file EasyImage.cc.

5.2.2.2 img::Easylmage::Easylmage ( Easylmage const & img )

Copy Constructor.

## Parameters

img	the image to be copied

Definition at line 156 of file EasyImage.cc.

## 5.2.3 Member Function Documentation

5.2.3.1 void img::Easylmage::clear ( Color color = Color () )

Fills the image with a background of a specified color. Defaults to black.

## Parameters

color	The color to be assigned to each pixel

Definition at line 184 of file EasyImage.cc.

5.2.3.2 void img::EasyImage::draw\_line ( unsigned int x0, unsigned int y0, unsigned int x1, unsigned int y1, Color color )

Draws a line from pixel (x0,y0) to pixel (x1,y1) in the specified color.

12 Class Documentation

#### **Parameters**

x0	the x coordinate of the first pixel
y0	the y coordinate of the first pixel
x1	the x coordinate of the second pixel
y1	the y coordinate of the second pixel
color	the color of the line

These assertions apply: assert(x0 < getWidth()) assert(y0 < getHeight()) assert(x1 < getWidth()) assert(y1 < getHeight())

Definition at line 208 of file EasyImage.cc.

5.2.3.3 unsigned int img::EasyImage::get\_height ( ) const

Returns the height of the image.

Returns

the height of the image

Definition at line 179 of file EasyImage.cc.

5.2.3.4 unsigned int img::EasyImage::get\_width ( ) const

Returns the width of the image.

Returns

the width of the image

Definition at line 174 of file Easylmage.cc.

5.2.3.5 img::Color & img::Easylmage::operator() ( unsigned int x, unsigned int y )

Function operator. This operator returns a reference to a particular pixel of the image.

#### **Parameters**

Х	the x coordinate of the pixel
У	the y coordinate of the pixel

These assertions apply: assert( $x \ge 0 \& x < getWidth()$ ) assert( $y \ge 0 \& y < getHeight()$ )

Definition at line 192 of file EasyImage.cc.

5.2.3.6 img::Color const & img::Easylmage::operator() (unsigned int <math>x, unsigned int y) const

Function operator. This operator returns a const reference to a particular pixel of the image.

## **Parameters**

X	the x coordinate of the pixel
у	the y coordinate of the pixel

These assertions apply: assert( $x \ge 0 \&\& x < getWidth()$ ) assert( $y \ge 0 \&\& y < getHeight()$ )

Definition at line 201 of file EasyImage.cc.

5.2.3.7 img::EasyImage & img::EasyImage::operator= ( img::EasyImage const & img )

Assignment operator. Allows an easylmage to be assigned to another easylmage.

## **Parameters**

img The image to be assigned to this image
--

Definition at line 166 of file EasyImage.cc.

## 5.2.4 Friends And Related Function Documentation

5.2.4.1 std::istream & in, EasyImage & image ) [friend]

Reads an img::Easylmage from an input stream.

Please note: at this point only a limited subset of BMP-file format is supported. In order to correctly read a BMP file it must:

· Be an uncompressed bitmap

Only contain one plane

Use 24bits/pixel If the BMP file-format is not supported an UnsupportedFileTypeException is thrown

#### **Parameters**

in	the input stream to read the bitmap from
image	the Easylmage object in which the bitmap must be stored

## Returns

a reference to the input stream from which the bitmap was read

The documentation for this class was generated from the following files:

- /Users/bartsas/Courses/Graphics/SVN/code/cxx/easyimage/EasyImage.h
- /Users/bartsas/Courses/Graphics/SVN/code/cxx/easyimage/EasyImage.cc

## 5.3 img::UnsupportedFileTypeException Class Reference

The exception that is thrown when an error occurs while trying to read an img::EasyImage from an input stream.

#include <EasyImage.h>

Inheritance diagram for img::UnsupportedFileTypeException:



## **Public Member Functions**

UnsupportedFileTypeException (std::string const &msg)

14 Class Documentation

Construct an exception with the given message.

• UnsupportedFileTypeException (const UnsupportedFileTypeException &original)

Copy Constructor.

virtual ~UnsupportedFileTypeException () throw ()

Destructor.

UnsupportedFileTypeException & operator= (const UnsupportedFileTypeException & original)

Assignment operator.

virtual const char \* what () const throw ()

Returns a description of the error hat occurred.

## 5.3.1 Detailed Description

The exception that is thrown when an error occurs while trying to read an img::EasyImage from an input stream. Definition at line 77 of file EasyImage.h.

## 5.3.2 Constructor & Destructor Documentation

5.3.2.1 img::UnsupportedFileTypeException::UnsupportedFileTypeException ( std::string const & msg )

Construct an exception with the given message.

### **Parameters**

msg	The message explaining what went wrong

Definition at line 124 of file EasyImage.cc.

5.3.2.2 img::UnsupportedFileTypeException::UnsupportedFileTypeException ( const UnsupportedFileTypeException & original )

Copy Constructor.

## **Parameters**

original	The exception to be copied into this object	Ī

Definition at line 128 of file EasyImage.cc.

## 5.3.3 Member Function Documentation

5.3.3.1 img::UnsupportedFileTypeException & img::UnsupportedFileTypeException::operator= ( const UnsupportedFileTypeException & original )

Assignment operator.

## **Parameters**

original	The original exception to be assigned to this one

Definition at line 136 of file EasyImage.cc.

 $\textbf{5.3.3.2} \quad \textbf{const char} * \textbf{img::} \textbf{UnsupportedFileTypeException::what ( ) const throw ()} \quad \texttt{[virtual]}$ 

Returns a description of the error hat occurred.

Returns

A description of the error hat occurred.

Definition at line 141 of file EasyImage.cc.

The documentation for this class was generated from the following files:

- /Users/bartsas/Courses/Graphics/SVN/code/cxx/easyimage/EasyImage.h
- /Users/bartsas/Courses/Graphics/SVN/code/cxx/easyimage/EasyImage.cc

## Index

```
\simColor
    img::Color, 10
clear
    img::EasyImage, 11
Color
    img::Color, 9
draw_line
    img::EasyImage, 11
Easylmage
    img::EasyImage, 11
get_height
    img::EasyImage, 12
get_width
    img::Easylmage, 12
img, 7
    operator << , 7
    operator>>, 8
img::Color, 9
     \simColor, 10
    Color, 9
img::EasyImage, 10
    clear, 11
    draw_line, 11
     Easylmage, 11
    get_height, 12
    get width, 12
    operator>>, 13
    operator(), 12
    operator=, 12
img::UnsupportedFileTypeException, 13
    operator=, 14
     UnsupportedFileTypeException, 14
    what, 14
operator<<
    img, 7
operator>>
    img, 8
    img::Easylmage, 13
operator()
    img::EasyImage, 12
operator=
    img::EasyImage, 12
    img::UnsupportedFileTypeException, 14
```

UnsupportedFileTypeException

```
img::UnsupportedFileTypeException, 14
what
    img::UnsupportedFileTypeException, 14
```