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# Jpeg2000.Net

Jpeg2000.Net is the royalty-free JPEG 2000 codec available as a pure .NET library.

The codec is written in C# without unsafe code and external dependencies.

The codec is available for WinForms, WPF and ASP.NET. A version for .NET Standard Library / .NET Core / ASP.NET Core is also available.

## Features

- Can compress and decompress JPEG 2000 images
- Lossy or lossless compression
- Alpha-channel support
- Can decode and encode images with up to 16 bits per component
- Can decode only part of an image
- Can decode particular tile only
- Can limit number of quality layers to be decoded
- Allows different compression ratios for different layers
- Allows to choose number of resolutions in the encoded image
- 100% managed, without unsafe blocks
- Available for .NET Standard Library / .NET Core / ASP.NET Core
- No external dependencies

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# Installing the Jpeg2000.Net library

## Installing from NuGet

The easiest way to get started is to install the BitMiracle.Jpeg2k package from NuGet.

## Installing manually

1. Download the latest release of the Jpeg2000.Net library from our site. The library is distributed as a ZIP package.

The ZIP package contains two versions of the library:

- version for .NET 4.0 and later frameworks
- version for .NET Standard 1.3 and later frameworks

The ZIP package also contains help file, all sample projects, and the file with the license agreement.

2. Extract the downloaded ZIP package to a location of your choice.

## Running samples

Jpeg2000.Net samples are located in the Samples folder of the ZIP package. Open SamplesCSharp solution file if you want to use sample code written in C# language. For a VB.NET version please open the SamplesVB.NET solution file.

The same sample code can be cloned or downloaded from our samples repository on GitHub.

Please take a time to review the samples. It should help you to add JPEG 2000 processing features to your application.

# Jpeg2000.Net

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## Version 2.2

August 12, 2020

- Added new [DecodeJpeg2000WithMemoryLimit](#) sample
- Added new [ReadDecodedPixels](#) sample
- The library can now create J2kImageData from JPEG images.
- BitMiracle.Jpeg2000.Net.dll is now signed with SHA-256 digital signature
- Output TIFF files are now compressed with either deflate or fax compression (depending on their properties)
- The library can now automatically detect, attach, and emit messages to a configured logger. NLog, Log4Net, Serilog, and Loupe loggers are supported.
- Fixed bugs related to the usage of Jpeg2000.Net from Blazor and from HoloLens projects
- Fixed bugs related to decoding of large JPEG 2000 images
- Fixed bugs related to decoding of JPEG 2000 images with unknown and unspecified color spaces when J2kDecodingOptions.ForceRgbColorSpace property is true
- Replaced MD5 hashing with FIPS-compliant algorithm

## Version 2.1

June 10, 2019

- Implemented support for multi-threading decoding. Take a look at the new J2kDecodingOptions.ThreadCount property
- Optimized speed of Jpeg2000 decoding
- Fixed bugs related to encoding and decoding of JPEG 2000 images

## Version 2.0

March 10, 2019

- Greatly optimized speed and memory consumption in J2kImage.DecodeArea() method
- Optimized memory consumption for Jpeg2000 decoding
- Optimized speed of Jpeg2000 encoding and decoding
- Fixed bugs related to encoding and decoding of JPEG 2000 images
- Fixed bugs in J2kImage.DecodeArea() method

## Version 1.0

May 1st, 2018

- Initial release

# Namespace BitMiracle.Jpeg2k

## Classes

### [J2kDecodingOptions](#)

The options for JPEG 2000 image decoding.

### [J2kEncodingOptions](#)

The options to use when creating a JPEG 2000 image.

### [J2kException](#)

Class for Jpeg2000.Net specific exceptions.

### [J2kImage](#)

Properties and methods for a JPEG 2000 image.

### [J2kImageComponent](#)

Class for a single component of a JPEG 2000 compatible image data.

### [J2kImageComponentInfo](#)

Class for a single component of a JPEG 2000 image.

### [J2kImageComponentPrecision](#)

Describes how an image component precision should be changed during decoding.

### [J2kImageData](#)

Encapsulates information about a JPEG 2000 compatible image data.

### [J2kImportOptions](#)

The options to use while creating [J2kImageData](#) from an image in one of the supported image formats.

### [J2kOpenOptions](#)

The options to be used while opening a JPEG 2000 image.

### [J2kPixels](#)

Provides access to pixels in [J2kImageComponent](#).

### [J2kTileInfo](#)

Provides information about tile in a JPEG 2000 image.

### [LicenseManager](#)

Class for license management. Provides properties and methods to add license to the Jpeg2000.Net library.

## Enums

### [J2kCodec](#)

Enumerations of all supported JPEG 2000 codecs.

### [J2kColorSpace](#)

Supported JPEG 2000 image color spaces

### [J2kOutputFormat](#)

Enumeration of all possible output formats

### [J2kPrecisionMode](#)

Enumeration of all possible image component precision forcing modes.

### [J2kProgressionOrder](#)

Enumeration of all possible progression orders.

### [J2kQualityMode](#)

Supported encoding quality modes.

### [J2kTileCodingStyle](#)

Enumeration of all possible coding styles.

# Enum J2kCodec

Enumerations of all supported JPEG 2000 codecs.

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

Syntax

```
public enum J2kCodec
```

## Fields

NAME	DESCRIPTION
J2k	JPEG-2000 codestream.
Jp2	JP2 file format.

# Enum J2kColorSpace

Supported JPEG 2000 image color spaces

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

Syntax

```
public enum J2kColorSpace
```

## Fields

NAME	DESCRIPTION
Cmyk	CMYK color space.
Eycc	e-YCC color space.
Gray	Grayscale color space.
Srgb	sRGB color space.
Sycc	sYCC (YUV) color space.
Unknown	Not supported by the library.
Unspecified	Not specified in the codestream.

# Class J2kDecodingOptions

The options for JPEG 2000 image decoding.

## Inheritance

System.Object  
J2kDecodingOptions

## Inherited Members

System.Object.ToString()  
System.Object.Equals(System.Object)  
System.Object.Equals(System.Object, System.Object)  
System.Object.ReferenceEquals(System.Object, System.Object)  
System.Object.GetHashCode()  
System.Object.GetType()  
System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kDecodingOptions
```

## Properties

### ComponentPrecision

Gets or sets information about how to change image components precision.

#### Declaration

```
public J2kImageComponentPrecision[] ComponentPrecision { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
<a href="#">J2kImageComponentPrecision[]</a>	

#### Remarks

Number of elements in this array must be less or equal to the number of image components.

If this property is `null` then components precision is not changed.

### ForceRgbColorSpace

Gets or sets a value indicating whether to force output colorspace to RGB.

#### Declaration

```
public bool ForceRgbColorSpace { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
System.Boolean	

### ThreadCount



Gets or sets the number of threads to use for decoding.

Declaration

```
public int ThreadCount { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

Remarks

Default value: 1

The value should be greater than or equal to .

### UpsampleComponents

Gets or sets a value indicating whether to upsample components.

Declaration

```
public bool UpsampleComponents { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Boolean	

# Class J2kEncodingOptions

The options to use when creating a JPEG 2000 image.

## Inheritance

System.Object

J2kEncodingOptions

## Inherited Members

System.Object.ToString()

System.Object.Equals(System.Object)

System.Object.Equals(System.Object, System.Object)

System.Object.ReferenceEquals(System.Object, System.Object)

System.Object.GetHashCode()

System.Object.GetType()

System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kEncodingOptions
```

## Properties

### Codec

Gets or sets the codec to use when creating the image.

#### Declaration

```
public J2kCodec Codec { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
<a href="#">J2kCodec</a>	

### InitialCodeBlockHeight

Gets or sets the initial code block height.

#### Declaration

```
public int InitialCodeBlockHeight { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

### InitialCodeBlockWidth

Gets or sets the initial code block width.

#### Declaration

```
public int InitialCodeBlockWidth { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

### InitialPrecintSizes

Gets or sets the initial precinct sizes.

Declaration

```
public int[] InitialPrecintSizes { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Int32[]	

Remarks

The array must contain even number of elements. Each pair of elements in the array specify size of a precinct. The first value in a pair is the width, the second value is the height of the precinct.

Values specified must be power of 2. Multiple pairs may be supplied, in which case the first pair refers to the highest resolution level and subsequent pairs to lower resolution levels. The last specified pair is reused for each remaining lower resolution levels.

When this parameter is `null`, the default initial precinct sizes are used.

Default initial precinct size is  $2^{15} \times 2^{15}$ . This means 1 precinct.

### ProduceTiledImage

Gets or sets a value indicating whether to produce image that consists of more than one tile.

Declaration

```
public bool ProduceTiledImage { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Boolean	

### ProgressionOrder

Gets or sets the progression order to use when creating the image.

Declaration

```
public J2kProgressionOrder ProgressionOrder { get; set; }
```

Property Value

TYPE	DESCRIPTION
<a href="#">J2kProgressionOrder</a>	

### QualityMode

Gets or sets the value indicating how to treat quality values specified by [QualityValues](#)

Declaration

```
public J2kQualityMode QualityMode { get; set; }
```

Property Value

TYPE	DESCRIPTION
<a href="#">J2kQualityMode</a>	

## QualityValues

Gets or sets the quality values to use while encoding.

Declaration

```
public float[] QualityValues { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Single[]	

Remarks

Meaning of the quality values depend on the value of the [QualityMode](#).

If the quality mode is `QualityMode.CompressionRatio` then the values of this array are compression ratios for successive layers. The rate specified for each quality level is the desired compression factor. Decreasing ratios required. Values 1 and 0 are treated the same. Example: 20, 10, 1 means

- quality layer 1: compress 20x
- quality layer 2: compress 10x
- quality layer 3: compress lossless

If the quality mode is `QualityMode.FixedQuality` then the values of this array are Peak signal-to-noise ratios (PSNR) for successive layers. Increasing ratios required. Example: 30, 40, 50.

When talking about PSNR in context of image compression the signal is the original data, and the noise is the error introduced by compression. PSNR is an approximation to human perception of reconstruction quality.

Typical values for the PSNR in lossy image and video compression are between 30 and 50 dB, provided the bit depth is 8 bits, where higher is better. For 16-bit data typical values for the PSNR are between 60 and 80 dB.

## ResolutionLevelCount

Gets or sets the number of resolution levels in the output image.

Declaration

```
public int ResolutionLevelCount { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## TileHeight

Gets or sets the height of the tiles in the output image.

Declaration

```
public int TileHeight { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

Remarks

This parameter is ignored if [ProduceTiledImage](#) is `false`.

## TileWidth

Gets or sets the width of the tiles in the output image.

Declaration

```
public int TileWidth { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

Remarks

This parameter is ignored if [ProduceTiledImage](#) is `false`.

# Class J2kException

Class for Jpeg2000.Net specific exceptions.

## Inheritance

System.Object  
System.Exception  
J2kException

## Implements

System.Runtime.Serialization.ISerializable  
System.Runtime.InteropServices.\_Exception

## Inherited Members

System.Exception.GetBaseException()  
System.Exception.ToString()  
System.Exception.GetObjectData(System.Runtime.Serialization.SerializationInfo, System.Runtime.Serialization.StreamingContext)  
System.Exception.GetType()  
System.Exception.Message  
System.Exception.Data  
System.Exception.InnerException  
System.Exception.TargetSite  
System.Exception.StackTrace  
System.Exception.HelpLink  
System.Exception.Source  
System.Exception.HResult  
System.Exception.SerializeObjectState  
System.Object.Equals(System.Object)  
System.Object.Equals(System.Object, System.Object)  
System.Object.ReferenceEquals(System.Object, System.Object)  
System.Object.GetHashCode()  
System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
[Serializable]  
public class J2kException : Exception, ISerializable, _Exception
```

## Constructors

### J2kException()

Initializes a new instance of the [J2kException](#) class without providing a message.

### Declaration

```
public J2kException()
```

### J2kException(SerializationInfo, StreamingContext)

Initializes a new instance of the [J2kException](#) class.

### Declaration

```
protected J2kException(SerializationInfo info, StreamingContext context)
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.Runtime.Serialization.SerializationInfo	info	The System.Runtime.Serialization.SerializationInfo that holds the serialized object data about the exception being thrown.
System.Runtime.Serialization.StreamingContext	context	The System.Runtime.Serialization.StreamingContext that contains contextual information about the source or destination.

#### Exceptions

TYPE	CONDITION
System.ArgumentNullException	The <code>info</code> parameter is null.
System.Runtime.Serialization.SerializationException	The class name is null or System.Exception.HResult is zero (0).

### J2kException(String)

Initializes a new instance of the [J2kException](#) class.

#### Declaration

```
public J2kException(string message)
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.String	message	The message.

### J2kException(String, Exception)

Initializes a new instance of the [J2kException](#) class.

#### Declaration

```
public J2kException(string message, Exception innerException)
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.String	message	The message.
System.Exception	innerException	The inner exception.

#### Implements

System.Runtime.Serialization.ISerializable

System.Runtime.InteropServices.\_Exception



# Class J2kImage

Properties and methods for a JPEG 2000 image.

## Inheritance

System.Object

J2kImage

## Implements

System.IDisposable

## Inherited Members

System.Object.ToString()

System.Object.Equals(System.Object)

System.Object.Equals(System.Object, System.Object)

System.Object.ReferenceEquals(System.Object, System.Object)

System.Object.GetHashCode()

System.Object.GetType()

System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kImage : IDisposable
```

## Constructors

### J2kImage(Stream)

Initializes a new instance of the [J2kImage](#) class with data from the specified stream.

#### Declaration

```
public J2kImage(Stream stream)
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.IO.Stream	stream	The stream with the image.

#### Remarks

The stream will not be owned or disposed by this object. The creator of this instance should dispose the stream himself.

### J2kImage(Stream, J2kOpenOptions)

Initializes a new instance of the [J2kImage](#) class with data from the specified file.

#### Declaration

```
public J2kImage(Stream stream, J2kOpenOptions options)
```

#### Parameters

TYPE	NAME	DESCRIPTION
------	------	-------------

TYPE	NAME	DESCRIPTION
System.IO.Stream	stream	The stream with the image.
<a href="#">J2kOpenOptions</a>	options	The options to use while opening the image.

#### Remarks

The stream will not be owned or disposed by this object. The creator of this instance should dispose the stream himself.

#### J2kImage(String)

Initializes a new instance of the [J2kImage](#) class with data from the specified file.

#### Declaration

```
public J2kImage(string fileName)
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.String	fileName	The name of the file with the image.

#### J2kImage(String, J2kOpenOptions)

Initializes a new instance of the [J2kImage](#) class with data from the specified stream.

#### Declaration

```
public J2kImage(string fileName, J2kOpenOptions options)
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.String	fileName	The name of the file with the image.
<a href="#">J2kOpenOptions</a>	options	The options to use while opening the image.

#### Properties

##### ColorSpace

Gets color space of the image.

#### Declaration

```
public J2kColorSpace ColorSpace { get; }
```

#### Property Value

TYPE	DESCRIPTION
<a href="#">J2kColorSpace</a>	

## ComponentsInfo

Gets read-only collection of this image components information.

Declaration

```
public ReadOnlyCollection<J2kImageComponentInfo> ComponentsInfo { get; }
```

Property Value

TYPE	DESCRIPTION
System.Collections.ObjectModel.ReadOnlyCollection< <a href="#">J2kImageComponentInfo</a> >	

## DefaultTileInfo

Gets information common to all tiles in this image.

Declaration

```
public J2kTileInfo DefaultTileInfo { get; }
```

Property Value

TYPE	DESCRIPTION
<a href="#">J2kTileInfo</a>	

## Height

Gets height of the image.

Declaration

```
public int Height { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## TileCount

Gets number of tiles in this image.

Declaration

```
public int TileCount { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## TileHeight

Gets height of one reference tile.

Declaration

```
public int TileHeight { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## TileWidth

Gets width of one reference tile.

Declaration

```
public int TileWidth { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Width

Gets width of the image.

Declaration

```
public int Width { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Methods

### Decode()

Decodes all tiles of the image using default decoding options.

Declaration

```
public J2kImageData Decode()
```

Returns

TYPE	DESCRIPTION
<a href="#">J2kImageData</a>	Decoded tiles and properties.

### Decode(J2kDecodingOptions)

Decodes all tiles of the image using specified decoding options.

#### Declaration

```
public J2kImageData Decode(J2kDecodingOptions options)
```

#### Parameters

TYPE	NAME	DESCRIPTION
<a href="#">J2kDecodingOptions</a>	options	The options to use while decoding the image tiles.

#### Returns

TYPE	DESCRIPTION
<a href="#">J2kImageData</a>	Decoded tiles and properties.

#### DecodeArea(Int32, Int32, Int32, Int32, J2kDecodingOptions)

Decodes part of the image using specified decoding options.

#### Declaration

```
public J2kImageData DecodeArea(int left, int top, int width, int height, J2kDecodingOptions options)
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.Int32	left	The horizontal offset from the origin of the image to the left side of the decoding area.
System.Int32	top	The vertical offset from the origin of the image to the top side of the decoding area.
System.Int32	width	The width of the decoding area.
System.Int32	height	The height of the decoding area.
<a href="#">J2kDecodingOptions</a>	options	The options to use while decoding the part of the image.

#### Returns

TYPE	DESCRIPTION
<a href="#">J2kImageData</a>	Decoded part of the image and properties.

#### DecodeTile(Int32)

Decodes one tile of the image using default decoding options.

## Declaration

```
public J2kImageData DecodeTile(int tileIndex)
```

## Parameters

TYPE	NAME	DESCRIPTION
System.Int32	tileIndex	The index of the tile to decode.

## Returns

TYPE	DESCRIPTION
<a href="#">J2kImageData</a>	Decoded tile data and properties.

## DecodeTile(Int32, J2kDecodingOptions)

Decodes one tile of the image using specified decoding options.

## Declaration

```
public J2kImageData DecodeTile(int tileIndex, J2kDecodingOptions options)
```

## Parameters

TYPE	NAME	DESCRIPTION
System.Int32	tileIndex	The index of the tile to decode.
<a href="#">J2kDecodingOptions</a>	options	The options to use while decoding the tile.

## Returns

TYPE	DESCRIPTION
<a href="#">J2kImageData</a>	Decoded tile data and properties.

## Dispose()

Disposes stream and other resources used by this image.

## Declaration

```
public void Dispose()
```

## Implements

System.IDisposable

# Class J2kImageComponent

Class for a single component of a JPEG 2000 compatible image data.

## Inheritance

System.Object

J2kImageComponent

## Inherited Members

System.Object.ToString()

System.Object.Equals(System.Object)

System.Object.Equals(System.Object, System.Object)

System.Object.ReferenceEquals(System.Object, System.Object)

System.Object.GetHashCode()

System.Object.GetType()

System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kImageComponent
```

## Properties

### BitsPerPixel

Gets or sets number of bits per each pixel of this component.

#### Declaration

```
public int BitsPerPixel { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

### Height

Gets height of this component.

#### Declaration

```
public int Height { get; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

### HorizontalSeparation

Gets the horizontal separation of a sample of the component with respect to the reference grid.

#### Declaration

```
public int HorizontalSeparation { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Left

Gets horizontal offset from the origin of the whole image to the left side of this component.

Declaration

```
public int Left { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## PixelsAreSigned

Gets a value indicating whether this component pixels are signed or unsigned.

Declaration

```
public bool PixelsAreSigned { get; }
```

Property Value

TYPE	DESCRIPTION
System.Boolean	

## Top

Gets vertical offset from the origin of the whole image to the top side of this component.

Declaration

```
public int Top { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## VerticalSeparation

Gets the vertical separation of a sample of the component with respect to the reference grid.

Declaration

```
public int VerticalSeparation { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	



## Width

Gets width of this component.

Declaration

```
public int Width { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Methods

### GetPixels()

Gets access to all component's pixels ordered from left to right, from top to bottom.

Declaration

```
public J2kPixels GetPixels()
```

Returns

TYPE	DESCRIPTION
<a href="#">J2kPixels</a>	The pixels.

# Class J2kImageComponentInfo

Class for a single component of a JPEG 2000 image.

## Inheritance

System.Object

J2kImageComponentInfo

## Inherited Members

System.Object.ToString()

System.Object.Equals(System.Object)

System.Object.Equals(System.Object, System.Object)

System.Object.ReferenceEquals(System.Object, System.Object)

System.Object.GetHashCode()

System.Object.GetType()

System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kImageComponentInfo
```

## Properties

### BitsPerPixel

Gets number of bits per each pixel of this component.

#### Declaration

```
public int BitsPerPixel { get; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

### Height

Gets height of this component.

#### Declaration

```
public int Height { get; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

### HorizontalSeparation

Gets the horizontal separation of a sample of the component with respect to the reference grid.

#### Declaration

```
public int HorizontalSeparation { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Left

Gets horizontal offset from the origin of the whole image to the left side of this component.

Declaration

```
public int Left { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Top

Gets vertical offset from the origin of the whole image to the top side of this component.

Declaration

```
public int Top { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## VerticalSeparation

Gets the vertical separation of a sample of the component with respect to the reference grid.

Declaration

```
public int VerticalSeparation { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Width

Gets width of this component.

Declaration

```
public int Width { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

# Class J2kImageComponentPrecision

Describes how an image component precision should be changed during decoding.

## Inheritance

System.Object

J2kImageComponentPrecision

## Inherited Members

System.Object.ToString()

System.Object.Equals(System.Object)

System.Object.Equals(System.Object, System.Object)

System.Object.ReferenceEquals(System.Object, System.Object)

System.Object.GetHashCode()

System.Object.GetType()

System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kImageComponentPrecision
```

## Properties

### Mode

Gets or sets the mode to use while forcing the precision.

#### Declaration

```
public J2kPrecisionMode Mode { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
<a href="#">J2kPrecisionMode</a>	

### Precision

Gets or sets precision (number of bits per each pixel of this component) to force.

#### Declaration

```
public int Precision { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

# Class J2kImageData

Encapsulates information about a JPEG 2000 compatible image data.

## Inheritance

System.Object

J2kImageData

## Inherited Members

System.Object.ToString()

System.Object.Equals(System.Object)

System.Object.Equals(System.Object, System.Object)

System.Object.ReferenceEquals(System.Object, System.Object)

System.Object.GetHashCode()

System.Object.GetType()

System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kImageData
```

## Properties

### ColorSpace

Gets color space of this image data.

#### Declaration

```
public J2kColorSpace ColorSpace { get; }
```

#### Property Value

TYPE	DESCRIPTION
<a href="#">J2kColorSpace</a>	

## Components

Gets read-only collection of this image data components.

#### Declaration

```
public ReadOnlyCollection<J2kImageComponent> Components { get; }
```

#### Property Value

TYPE	DESCRIPTION
System.Collections.ObjectModel.ReadOnlyCollection< <a href="#">J2kImageComponent</a> >	

## Height

Gets height of this image data.

#### Declaration

```
public int Height { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Left

Gets horizontal offset from the origin of the reference grid to the left side of this image data.

Declaration

```
public int Left { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Top

Gets vertical offset from the origin of the reference grid to the top side of this image data.

Declaration

```
public int Top { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Width

Gets width of this image data.

Declaration

```
public int Width { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## Methods

### Encode(Stream)

Encodes this image data into JPEG 2000 image using default encoding options and saves the image into the specified stream.

Declaration

```
public void Encode(Stream stream)
```

Parameters

TYPE	NAME	DESCRIPTION
System.IO.Stream	stream	The stream to save the JPEG 2000 image to.

### Encode(Stream, J2kEncodingOptions)

Encodes this image data into JPEG 2000 image using specified encoding options and saves the image into the specified stream.

Declaration

```
public void Encode(Stream stream, J2kEncodingOptions options)
```

Parameters

TYPE	NAME	DESCRIPTION
System.IO.Stream	stream	The stream to save the JPEG 2000 image to.
<a href="#">J2kEncodingOptions</a>	options	The options to use when creating the JPEG 2000 image.

### Encode(String)

Encodes this image data into JPEG 2000 image using default encoding options and saves the image into the specified file.

Declaration

```
public void Encode(string fileName)
```

Parameters

TYPE	NAME	DESCRIPTION
System.String	fileName	The name of the file to save the JPEG 2000 image to.

### Encode(String, J2kEncodingOptions)

Encodes this image data into JPEG 2000 image using specified encoding options and saves the image into the specified file.

Declaration

```
public void Encode(string fileName, J2kEncodingOptions options)
```

Parameters

TYPE	NAME	DESCRIPTION
System.String	fileName	The name of the file to save the JPEG 2000 image to.
<a href="#">J2kEncodingOptions</a>	options	The options to use when creating the JPEG 2000 image.

### FromImage(Stream)

Creates a new instance of the [J2kImageData](#) class by importing image from the specified stream.

Creates a new instance of the [J2kImageData](#) class by importing image from the specified stream.

#### Declaration

```
public static J2kImageData FromImage(Stream stream)
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.IO.Stream	stream	The stream with the image.

#### Returns

TYPE	DESCRIPTION
<a href="#">J2kImageData</a>	A new instance of the <a href="#">J2kImageData</a> class with image data from the specified file.

#### Remarks

The stream should contain image in one of the supported formats.

At this time supported image formats are BMP, JPEG, and TIFF.

The stream will not be owned or disposed by this object. The caller of this method should dispose the stream himself.

#### FromImage(Stream, J2kImportOptions)

Creates a new instance of the [J2kImageData](#) class by importing image from the specified stream using specified options.

#### Declaration

```
public static J2kImageData FromImage(Stream stream, J2kImportOptions options)
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.IO.Stream	stream	The stream with the image.
<a href="#">J2kImportOptions</a>	options	The options to use while importing the image.

#### Returns

TYPE	DESCRIPTION
<a href="#">J2kImageData</a>	A new instance of the <a href="#">J2kImageData</a> class with image data from the specified file.

#### Remarks

The stream should contain image in one of the supported formats.

At this time supported image formats are BMP, JPEG, and TIFF.

The stream will not be owned or disposed by this object. The caller of this method should dispose the stream himself.



## FromImage(String)

Creates a new instance of the [J2kImageData](#) class by importing image from the specified file.

### Declaration

```
public static J2kImageData FromImage(string fileName)
```

### Parameters

TYPE	NAME	DESCRIPTION
System.String	fileName	The name of the file with the image.

### Returns

TYPE	DESCRIPTION
<a href="#">J2kImageData</a>	A new instance of the <a href="#">J2kImageData</a> class with image data from the specified file.

### Remarks

The file should contain image in one of the supported formats.

At this time supported image formats are BMP, JPEG, and TIFF.

## FromImage(String, J2kImportOptions)

Creates a new instance of the [J2kImageData](#) class by importing image from the specified file using specified options.

### Declaration

```
public static J2kImageData FromImage(string fileName, J2kImportOptions options)
```

### Parameters

TYPE	NAME	DESCRIPTION
System.String	fileName	The name of the file with the image.
<a href="#">J2kImportOptions</a>	options	The options to use while importing the image.

### Returns

TYPE	DESCRIPTION
<a href="#">J2kImageData</a>	A new instance of the <a href="#">J2kImageData</a> class with image data from the specified file.

### Remarks

The file should contain image in one of the supported formats.

At this time supported image formats are BMP, JPEG, and TIFF.

## Save(Stream, J2kOutputFormat)

Encodes this image data using the specified file format and saves the result to the specified stream.

Declaration

```
public void Save(Stream stream, J2kOutputFormat format)
```

Parameters

TYPE	NAME	DESCRIPTION
System.IO.Stream	stream	The stream to save the result to.
<a href="#">J2kOutputFormat</a>	format	The file format to use while encoding.

**Save(String, J2kOutputFormat)**

Encodes this image data using the specified file format and saves the result to the specified file.

Declaration

```
public void Save(string fileName, J2kOutputFormat format)
```

Parameters

TYPE	NAME	DESCRIPTION
System.String	fileName	The name of the file to save the result to.
<a href="#">J2kOutputFormat</a>	format	The file format to use while encoding.

# Class J2kImportOptions

The options to use while creating [J2kImageData](#) from an image in one of the supported image formats.

## Inheritance

System.Object

J2kImportOptions

## Inherited Members

System.Object.ToString()

System.Object.Equals(System.Object)

System.Object.Equals(System.Object, System.Object)

System.Object.ReferenceEquals(System.Object, System.Object)

System.Object.GetHashCode()

System.Object.GetType()

System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kImportOptions
```

## Properties

### ImageLeft

Gets or sets image origin offset in x direction.

#### Declaration

```
public int ImageLeft { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

### ImageTop

Gets or sets image origin offset in y direction.

#### Declaration

```
public int ImageTop { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

### SubsamplingDx

Gets or sets subsampling value for dx.

#### Declaration

```
public int SubsamplingDx { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

## SubsamplingDy

Gets or sets subsampling value for dy.

Declaration

```
public int SubsamplingDy { get; set; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

# Class J2kOpenOptions

The options to be used while opening a JPEG 2000 image.

## Inheritance

System.Object  
J2kOpenOptions

## Inherited Members

System.Object.ToString()  
System.Object.Equals(System.Object)  
System.Object.Equals(System.Object, System.Object)  
System.Object.ReferenceEquals(System.Object, System.Object)  
System.Object.GetHashCode()  
System.Object.GetType()  
System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kOpenOptions
```

## Properties

### IgnoreColorInformation

Gets or sets a value indicating whether color information (palette, channels info etc.) should be ignored.

#### Declaration

```
public bool IgnoreColorInformation { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
System.Boolean	

### QualityLayersToKeep

Gets or sets the number of quality layers to process.

#### Declaration

```
public int QualityLayersToKeep { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

## Remarks

If there are less quality layers than the specified number, all the quality layers will be processed.

### ResolutionLevelsToDiscard

Gets or sets the number of highest resolution levels to be discarded.

#### Declaration

```
public int ResolutionLevelsToDiscard { get; set; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

#### Remarks

The image resolution is effectively divided by 2 to the power of the number of discarded levels.

The reduce factor is limited by the smallest total number of decomposition levels among tiles.

If value of this property is not equal to 0, then original dimensions of the image are divided by  $2^{(\text{value})}$ , otherwise (when value is equal to 0) the image is decoded in full resolution.

# Enum J2kOutputFormat

Enumeration of all possible output formats

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

Syntax

```
public enum J2kOutputFormat
```

## Fields

NAME	DESCRIPTION
Bmp	Bitmap image file (BMP).
Tiff	Tagged Image File Format (TIFF).

# Class J2kPixels

Provides access to pixels in [J2kImageComponent](#).

## Inheritance

System.Object

J2kPixels

## Inherited Members

System.Object.ToString()

System.Object.Equals(System.Object)

System.Object.Equals(System.Object, System.Object)

System.Object.ReferenceEquals(System.Object, System.Object)

System.Object.GetHashCode()

System.Object.GetType()

System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kPixels
```

## Properties

### Count

Gets the number of pixels.

#### Declaration

```
public int Count { get; }
```

#### Property Value

TYPE	DESCRIPTION
System.Int32	

### Item[Int32]

Gets the pixel at the specified position.

#### Declaration

```
public int this[int index] { get; }
```

#### Parameters

TYPE	NAME	DESCRIPTION
System.Int32	index	Pixel index. Must be greater than or equal to <code>0</code> and less than <code>Count</code>

#### Property Value

TYPE	DESCRIPTION
------	-------------



TYPE	DESCRIPTION
System.Int32	The pixel at the specified position.

# Enum J2kPrecisionMode

Enumeration of all possible image component precision forcing modes.

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

Syntax

```
public enum J2kPrecisionMode
```

## Fields

NAME	DESCRIPTION
Clip	Image component should be clipped.
Scale	Image component should be scaled.

# Enum J2kProgressionOrder

Enumeration of all possible progression orders.

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

Syntax

```
public enum J2kProgressionOrder
```

## Fields

NAME	DESCRIPTION
Cprl	Component-precinct-resolution-layer order
Lrcl	Layer-resolution-component-precinct order
Pcrl	Precinct-component-resolution-layer order
Rlcl	Resolution-layer-component-precinct order
Rpcl	Resolution-precinct-component-layer order
Unknown	Progression order is not known / not specified

# Enum J2kQualityMode

Supported encoding quality modes.

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

Syntax

```
public enum J2kQualityMode
```

## Fields

NAME	DESCRIPTION
CompressionRatio	Quality values treated as compression ratios for successive layers.
FixedQuality	Quality values treated as Peak signal-to-noise ratios (PSNR) for successive layers.

# Enum J2kTileCodingStyle

Enumeration of all possible coding styles.

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

Syntax

```
[Flags]  
public enum J2kTileCodingStyle
```

## Fields

NAME	DESCRIPTION
UseCustomPrecint	Use custom precint.
UseEndOfPacketHeader	Use end of packet header marker.
UseStartOfPacket	Use start of packet marker.

# Class J2kTileInfo

Provides information about tile in a JPEG 2000 image.

## Inheritance

System.Object

J2kTileInfo

## Inherited Members

System.Object.ToString()

System.Object.Equals(System.Object)

System.Object.Equals(System.Object, System.Object)

System.Object.ReferenceEquals(System.Object, System.Object)

System.Object.GetHashCode()

System.Object.GetType()

System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public class J2kTileInfo
```

## Properties

### CodingStyle

Gets coding style of this tile.

#### Declaration

```
public J2kTileCodingStyle CodingStyle { get; }
```

#### Property Value

TYPE	DESCRIPTION
<a href="#">J2kTileCodingStyle</a>	

### ProgressionOrder

Gets progression order of this tile.

#### Declaration

```
public J2kProgressionOrder ProgressionOrder { get; }
```

#### Property Value

TYPE	DESCRIPTION
<a href="#">J2kProgressionOrder</a>	

### QualityLayerCount

Gets number of quality layers in this tile.

#### Declaration

```
public int QualityLayerCount { get; }
```

Property Value

TYPE	DESCRIPTION
System.Int32	

# Class LicenseManager

Class for license management. Provides properties and methods to add license to the Jpeg2000.Net library.

## Inheritance

System.Object  
LicenseManager

## Inherited Members

System.Object.ToString()  
System.Object.Equals(System.Object)  
System.Object.Equals(System.Object, System.Object)  
System.Object.ReferenceEquals(System.Object, System.Object)  
System.Object.GetHashCode()  
System.Object.GetType()  
System.Object.MemberwiseClone()

Namespace: [BitMiracle.Jpeg2k](#)

Assembly: BitMiracle.Jpeg2000.Net.dll

## Syntax

```
public static class LicenseManager
```

## Properties

### IsValidLicense

Gets a value indicating whether a valid license is applied.

## Declaration

```
public static bool IsValidLicense { get; }
```

## Property Value

TYPE	DESCRIPTION
System.Boolean	<code>true</code> if a valid license is applied; otherwise, <code>false</code> .

## Methods

### Reset()

Resets previously set license.

## Declaration

```
public static void Reset()
```

### SetLicense(String, String)

Applies permanent license.

## Declaration

```
public static void SetLicense(string licenseKey, string owner)
```

## Parameters



TYPE	NAME	DESCRIPTION
System.String	licenseKey	License key
System.String	owner	Identifier of the license owner

### SetTrialLicense(String)

Applies trial license.

Declaration

```
public static void SetTrialLicense(string licenseKey)
```

Parameters

TYPE	NAME	DESCRIPTION
System.String	licenseKey	License key