Stegosaurus

1.0

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Chapter 4

Namespace Documentation

4.1 Stegosaurus Namespace Reference

Namespaces

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- class InputFile
- class **Program**
- class StegoMessage

4.2 Stegosaurus.Algorithm Namespace Reference

Namespaces

Classes

- class CommonSampleAlgorithm
- class GraphTheoreticAlgorithm
- class LSBAlgorithm
- class StegoAlgorithmBase

4.3 Stegosaurus.Algorithm.CommonSample Namespace Reference

Classes

- class Sample

4.4 Stegosaurus.Algorithm.GraphTheory Namespace Reference

Classes

- class CountedVerticeList
- class Edge
- class Sample
- class Vertex

4.5 Stegosaurus.Carrier Namespace Reference

Namespaces

Classes

- class AudioCarrier
- interface ICarrierMedia
- class ImageCarrier

4.6 Stegosaurus.Carrier.AudioFormats Namespace Reference

Classes

- class AudioFile
- class WaveFile

4.7 Stegosaurus.Cryptography Namespace Reference

Classes

- class AESProvider
- interface ICryptoProvider
- class RSAKeyPair
- class RSAProvider
- class TripleDESProvider

4.8 Stegosaurus.Exceptions Namespace Reference

Classes

- class InvalidCarrierFileException
- class InvalidImageFileException
- class InvalidWaveFileException
- class RandomNumbersOutOfRangeException
- class StegoAlgorithmException
- class StegoCryptoException
- class StegoMessageException
- class StegosaurusException

4.9 Stegosaurus.Extensions Namespace Reference

Namespaces

Classes

- class **FileSizeExtensions**

4.10 Stegosaurus.Extensions.InputExtensions Namespace Reference

Classes

- class CarrierType
- class ContentType
- interface IInputType

4.11 Stegosaurus.Forms Namespace Reference

Classes

- class FormEmbeddingProgress
- class FormMain

4.12 Stegosaurus.Properties Namespace Reference

Classes

- class **Resources**

  A strongly-typed resource class, for looking up localized strings, etc.
- class **Settings**

4.13 Stegosaurus.Utility Namespace Reference

Namespaces

Classes

- class **Compression**
- class **IconExtractor**
- class **KeyDeriver**
- class RandomNumberList
- class **SizeFormatter**

4.14 Stegosaurus.Utility.Extensions Namespace Reference

Classes

- class **ByteArrayExtensions**
- class **StreamExtensions**

4.15 Stegosaurus.Utility.InputTypes Namespace Reference

Classes

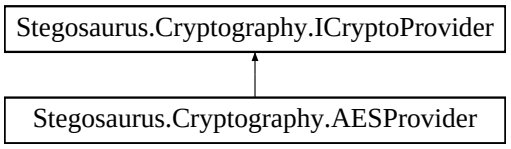
- class CarrierType
- class ContentType
- interface IInputType

Chapter 5

Class Documentation

5.1 Stegosaurus.Cryptography.AESProvider Class Reference

Inheritance diagram for Stegosaurus.Cryptography.AESProvider:



Public Member Functions

- byte[ ] Encrypt (byte[ ] _data)

  Encrypts and returns encrypted data.
- byte[ ] Decrypt (byte[ ] _data)

  Decrypts and returns decrypted data.
- byte[ ] GenerateKey ()

  Generates and returns a key which can be used with the algorithm.
- void SetKey (string _keyString)

  Set the Key from a string.

Public Attributes

- string **Name** => "AES"
- int **Seed** => Key == null ? 0 : Key.ComputeHash()
- int **KeySize** => 256

Properties

- byte[ ] **Key** `[get, set]`

5.1.1 Member Function Documentation

5.1.1.1 byte [ ] Stegosaurus.Cryptography.AESProvider.Decrypt (byte[ ] *_data*)

Decrypts and returns decrypted data.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.1.1.2 byte [ ] Stegosaurus.Cryptography.AESProvider.Encrypt (byte[ ] *_data*)

Encrypts and returns encrypted data.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.1.1.3 byte [ ] Stegosaurus.Cryptography.AESProvider.GenerateKey ( )

Generates and returns a key which can be used with the algorithm.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.1.1.4 void Stegosaurus.Cryptography.AESProvider.SetKey (string *_keyString*)

Set the Key from a string.

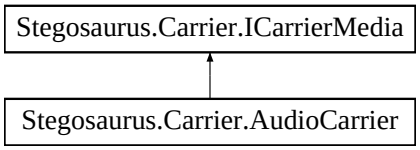
Implements Stegosaurus.Cryptography.ICryptoProvider.

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

- Steganography/Stegosaurus/Cryptography/AESProvider.cs

5.2 Stegosaurus.Carrier.AudioCarrier Class Reference

Inheritance diagram for Stegosaurus.Carrier.AudioCarrier:



Public Member Functions

- AudioCarrier (string _filePath)

  Construct an AudioCarrier from a file path.
- void Decode ()

  Decodes the carrier media and sets ByteArray to the inner data.
- void Encode ()

  Encodes ByteArray back into the carrier media.
- void SaveToFile (string _destination)

  Saves the carrier media to the specified destination.

Public Attributes

- int **BytesPerSample** => audioFile.BitsPerSample / 8

Properties

- byte[] **ByteArray** `[get, set]`

5.2.1 Constructor & Destructor Documentation

5.2.1.1 Stegosaurus.Carrier.AudioCarrier.AudioCarrier (string *_filePath*)

Construct an AudioCarrier from a file path.

5.2.2 Member Function Documentation

5.2.2.1 void Stegosaurus.Carrier.AudioCarrier.Decode ( )

Decodes the carrier media and sets ByteArray to the inner data.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.2.2.2 void Stegosaurus.Carrier.AudioCarrier.Encode ( )

Encodes ByteArray back into the carrier media.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.2.2.3 void Stegosaurus.Carrier.AudioCarrier.SaveToFile (string *_destination*)

Saves the carrier media to the specified destination.

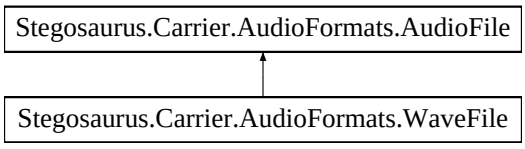
Implements Stegosaurus.Carrier.ICarrierMedia.

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

- Steganography/Stegosaurus/Carrier/AudioCarrier.cs

5.3 Stegosaurus.Carrier.AudioFormats.AudioFile Class Reference

Inheritance diagram for Stegosaurus.Carrier.AudioFormats.AudioFile:



Public Member Functions

- abstract void Parse (string _filePath)

  Parses an audio file by reading its headers and samples.
- abstract byte[ ] ToArray ()

  Reconstructs and returns the entire byte array of the file, including headers.
- virtual void SetInnerData (byte[ ] _innerData)

  Sets the innerData of the audio file, which contains the original samples.
- virtual byte[ ] CopyInnerData ()

  Returns a clone of the innerData array which can be manipulated by an algorithm.

Protected Member Functions

- AudioFile (string _filePath)

  Construct an AudioFile from a file path.

Protected Attributes

- byte[ ] **innerData**

Properties

- short NumberOfChannels `[get, protected set]`

  Get or set the number of channels.
- int SampleRate `[get, protected set]`

  Get or set the sample rate.
- int ByteRate `[get, protected set]`

  Get or set the byte rate.
- short BlockAlign `[get, protected set]`

  Get or set the block align.
- short BitsPerSample `[get, protected set]`

  Get or set the bits per sample.

5.3.1 Constructor & Destructor Documentation

5.3.1.1 Stegosaurus.Carrier.AudioFormats.AudioFile.AudioFile (string *_filePath*) `[protected]`

Construct an AudioFile from a file path.

5.3.2 Member Function Documentation

5.3.2.1 virtual byte [ ] Stegosaurus.Carrier.AudioFormats.AudioFile.CopyInnerData ( ) `[virtual]`

Returns a clone of the innerData array which can be manipulated by an algorithm.

5.3.2.2 abstract void Stegosaurus.Carrier.AudioFormats.AudioFile.Parse (string *_filePath*) [pure virtual]

Parses an audio file by reading its headers and samples.

Implemented in Stegosaurus.Carrier.AudioFormats.WaveFile.

5.3.2.3 virtual void Stegosaurus.Carrier.AudioFormats.AudioFile.SetInnerData (byte[ ] *_innerData*) [virtual]

Sets the innerData of the audio file, which contains the original samples.

5.3.2.4 abstract byte [ ] Stegosaurus.Carrier.AudioFormats.AudioFile.ToArray ( ) [pure virtual]

Reconstructs and returns the entire byte array of the file, including headers.

Implemented in Stegosaurus.Carrier.AudioFormats.WaveFile.

5.3.3 Property Documentation

5.3.3.1 short Stegosaurus.Carrier.AudioFormats.AudioFile.BitsPerSample [get], [protected set]

Get or set the bits per sample.

5.3.3.2 short Stegosaurus.Carrier.AudioFormats.AudioFile.BlockAlign [get], [protected set]

Get or set the block align.

5.3.3.3 int Stegosaurus.Carrier.AudioFormats.AudioFile.ByteRate [get], [protected set]

Get or set the byte rate.

5.3.3.4 short Stegosaurus.Carrier.AudioFormats.AudioFile.NumberOfChannels [get], [protected set]

Get or set the number of channels.

5.3.3.5 int Stegosaurus.Carrier.AudioFormats.AudioFile.SampleRate [get], [protected set]

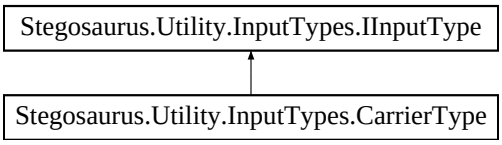
Get or set the sample rate.

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

- Steganography/Stegosaurus/Carrier/AudioFormats/AudioFile.cs

5.4 Stegosaurus.Utility.InputTypes.CarrierType Class Reference

Inheritance diagram for Stegosaurus.Utility.InputTypes.CarrierType:



Public Member Functions

- **CarrierType** (string _filePath)

Properties

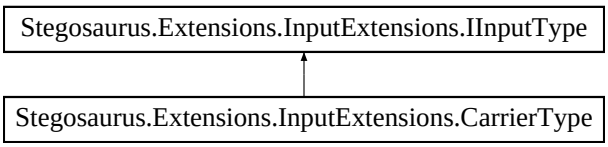
- string **FilePath** `[get, set]`

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

- Steganography/Stegosaurus/Utility/InputTypes/CarrierType.cs

5.5 Stegosaurus.Extensions.InputExtensions.CarrierType Class Reference

Inheritance diagram for Stegosaurus.Extensions.InputExtensions.CarrierType:



Public Member Functions

- **CarrierType** (string _filePath)

Properties

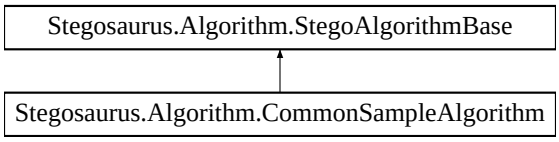
- string **FilePath** `[get, set]`

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

- Steganography/Stegosaurus/Extensions/InputExtensions/CarrierType.cs

5.6 Stegosaurus.Algorithm.CommonSampleAlgorithm Class Reference

Inheritance diagram for Stegosaurus.Algorithm.CommonSampleAlgorithm:



Public Member Functions

- override void Embed (StegoMessage message, IProgress< int > _progress, CancellationToken _ct)

  Embeds a StegoMessage in the public ByteArray of the CarrierMedia.
- override StegoMessage Extract ()

  Returns a StegoMessage by extracting from the public ByteArray of the CarrierMedia.
- override long ComputeBandwidth ()

  Returns the data capacity of the carrier media with the given algorithm.

Public Attributes

- override string **Name** => "Common Sample"

Protected Attributes

- override byte[ ] **Signature** => new byte[ ] { 0x0C, 0xB3, 0x11, 0x84 }

Properties

- int MaxDistance `[get, set]`

  Get or set the maximum distance.
- int MaxSampleCount = 250 `[get, set]`

  Get or set the maximum sample count.

5.6.1 Member Function Documentation

5.6.1.1 override long Stegosaurus.Algorithm.CommonSampleAlgorithm.ComputeBandwidth ( ) [virtual]

Returns the data capacity of the carrier media with the given algorithm.

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.6.1.2 override void Stegosaurus.Algorithm.CommonSampleAlgorithm.Embed (StegoMessage *_message*, IProgress< int > *_progress*, CancellationToken *_ct*) [virtual]

Embeds a StegoMessage in the public ByteArray of the CarrierMedia.

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.6.1.3 override StegoMessage Stegosaurus.Algorithm.CommonSampleAlgorithm.Extract ( ) [virtual]

Returns a StegoMessage by extracting from the public ByteArray of the CarrierMedia.

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.6.2 Property Documentation

5.6.2.1 int Stegosaurus.Algorithm.CommonSampleAlgorithm.MaxDistance [get], [set]

Get or set the maximum distance.

5.6.2.2 int Stegosaurus.Algorithm.CommonSampleAlgorithm.MaxSampleCount = 250 [get], [set]

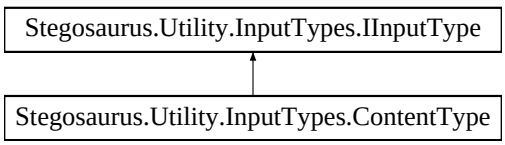
Get or set the maximum sample count.

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

- Steganography/Stegosaurus/Algorithm/CommonSampleAlgorithm.cs

5.7 Stegosaurus.Utility.InputTypes.ContentType Class Reference

Inheritance diagram for Stegosaurus.Utility.InputTypes.ContentType:



Public Member Functions

- **ContentType** (string _filePath)

Properties

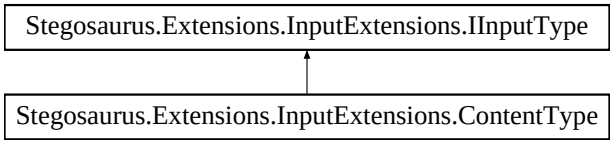
- string **FilePath** [get, set]

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

- Steganography/Stegosaurus/Utility/InputTypes/ContentType.cs

5.8 Stegosaurus.Extensions.InputExtensions.ContentType Class Reference

Inheritance diagram for Stegosaurus.Extensions.InputExtensions.ContentType:



Public Member Functions

- **ContentType** (string _filePath)

Properties

- string **FilePath** `[get, set]`

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

- Steganography/Stegosaurus/Extensions/InputExtensions/ContentType.cs

5.9 Stegosaurus.Algorithm.GraphTheory.CountedVerticeList Class Reference

Public Member Functions

- void **Add** (Vertex _newVertex)
- Vertex **Get** (int _index)

Public Attributes

- int **Count** = 0
- List< Vertex > **vertices** = new List<Vertex>()

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

- Steganography/Stegosaurus/Algorithm/GraphTheory/CountedVerticeList.cs

5.10 Stegosaurus.Algorithm.GraphTheory.Edge Class Reference

Public Member Functions

- **Edge** (Vertex _firstVertex, Vertex _secondVertex, short _weight, byte[] _bestSwaps)
- override string **ToString** ()

Public Attributes

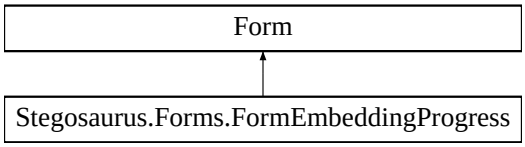
- Vertex[ ] **Vertices** = new Vertex[2]
- short **Weight**
- byte[ ] **BestSwaps**

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

- Steganography/Stegosaurus/Algorithm/GraphTheory/Edge.cs

5.11 Stegosaurus.Forms.FormEmbeddingProgress Class Reference

Inheritance diagram for Stegosaurus.Forms.FormEmbeddingProgress:



Public Member Functions

- async Task **Run** (StegoMessage _message, StegoAlgorithmBase _algorithm, string _name, string _↩ extension)

Protected Member Functions

- override void Dispose (bool disposing)
  Clean up any resources being used.

5.11.1 Member Function Documentation

5.11.1.1 override void Stegosaurus.Forms.FormEmbeddingProgress.Dispose (bool *disposing*) [protected]

Clean up any resources being used.

Parameters

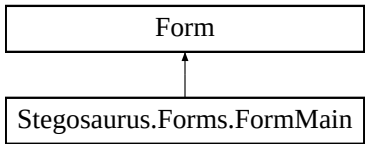
disposing	true if managed resources should be disposed; otherwise, false.

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

- Steganography/Stegosaurus/Forms/FormEmbeddingProgress.cs
- Steganography/Stegosaurus/Forms/FormEmbeddingProgress.Designer.cs

5.12 Stegosaurus.Forms.FormMain Class Reference

Inheritance diagram for Stegosaurus.Forms.FormMain:



Protected Member Functions

- override void Dispose (bool disposing)

  Clean up any resources being used.

5.12.1 Member Function Documentation

5.12.1.1 override void Stegosaurus.Forms.FormMain.Dispose (bool *disposing*) [protected]

Clean up any resources being used.

Parameters

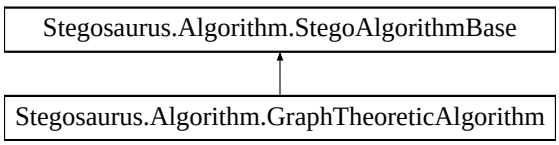
disposing	true if managed resources should be disposed; otherwise, false.

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

- Steganography/Stegosaurus/Forms/FormMain.cs
- Steganography/Stegosaurus/Forms/FormMain.Designer.cs

5.13 Stegosaurus.Algorithm.GraphTheoreticAlgorithm Class Reference

Inheritance diagram for Stegosaurus.Algorithm.GraphTheoreticAlgorithm:



Public Member Functions

- override long ComputeBandwidth ()

  Returns the data capacity of the carrier media with the given algorithm.
- override void Embed (StegoMessage _message, IProgress< int > _progress, CancellationToken _ct)

  Embeds a StegoMessage in the public ByteArray of the CarrierMedia.
- override StegoMessage Extract ()

  Returns a StegoMessage by extracting from the public ByteArray of the CarrierMedia.

Public Attributes

- override string **Name** => "Graph Theoretic Algorithm"

Properties

- byte **SamplesPerVertex** `[get, set]`
- byte **MessageBitsPerVertex** `[get, set]`
- ushort **DiscriminationFactor** `[get, set]`
- override byte[] **Signature** `[get]`

Additional Inherited Members

5.13.1 Member Function Documentation

5.13.1.1 override long Stegosaurus.Algorithm.GraphTheoreticAlgorithm.ComputeBandwidth ( ) [virtual]

Returns the data capacity of the carrier media with the given algorithm.

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.13.1.2 override void Stegosaurus.Algorithm.GraphTheoreticAlgorithm.Embed (StegoMessage *_message*, IProgress< int > *_progress*, CancellationToken *_ct*) [virtual]

Embeds a StegoMessage in the public ByteArray of the CarrierMedia.

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.13.1.3 override StegoMessage Stegosaurus.Algorithm.GraphTheoreticAlgorithm.Extract ( ) [virtual]

Returns a StegoMessage by extracting from the public ByteArray of the CarrierMedia.

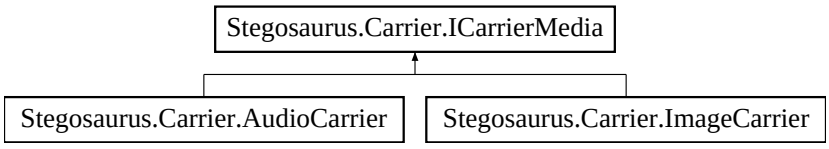
Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

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

- Steganography/Stegosaurus/Algorithm/GraphTheoreticAlgorithm.cs

5.14 Stegosaurus.Carrier.ICarrierMedia Interface Reference

Inheritance diagram for Stegosaurus.Carrier.ICarrierMedia:



Public Member Functions

- void Encode ()

  Encodes ByteArray back into the carrier media.
- void Decode ()

  Decodes the carrier media and sets ByteArray to the inner data.
- void SaveToFile (string _destination)

  Saves the carrier media to the specified destination.

Properties

- byte[ ] ByteArray `[get, set]`

  The byte array containing samples of the carrier media. This array is to be used by algorithms.
- int BytesPerSample `[get]`

  The amount of bytes per sample, where a sample is defined as a sequence of bytes. For example, the pixels in an image are samples, where the amount of bytes is the amount of channels.

5.14.1 Member Function Documentation

5.14.1.1 void Stegosaurus.Carrier.ICarrierMedia.Decode ( )

Decodes the carrier media and sets ByteArray to the inner data.

Implemented in Stegosaurus.Carrier.ImageCarrier, and Stegosaurus.Carrier.AudioCarrier.

5.14.1.2 void Stegosaurus.Carrier.ICarrierMedia.Encode ( )

Encodes ByteArray back into the carrier media.

Implemented in Stegosaurus.Carrier.ImageCarrier, and Stegosaurus.Carrier.AudioCarrier.

5.14.1.3 void Stegosaurus.Carrier.ICarrierMedia.SaveToFile (string *_destination*)

Saves the carrier media to the specified destination.

Implemented in Stegosaurus.Carrier.ImageCarrier, and Stegosaurus.Carrier.AudioCarrier.

5.14.2 Property Documentation

5.14.2.1 byte [ ] Stegosaurus.Carrier.ICarrierMedia.ByteArray `[get],[set]`

The byte array containing samples of the carrier media. This array is to be used by algorithms.

5.14.2.2 int Stegosaurus.Carrier.ICarrierMedia.BytesPerSample [get]

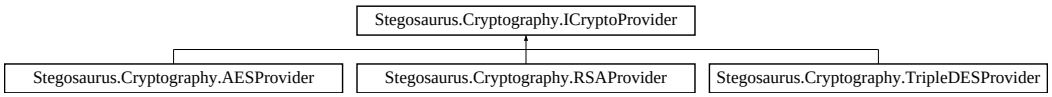
The amount of bytes per sample, where a sample is defined as a sequence of bytes. For example, the pixels in an image are samples, where the amount of bytes is the amount of channels.

The documentation for this interface was generated from the following file:

- Steganography/Stegosaurus/Carrier/ICarrierMedia.cs

5.15 Stegosaurus.Cryptography.ICryptoProvider Interface Reference

Inheritance diagram for Stegosaurus.Cryptography.ICryptoProvider:



Public Member Functions

- void SetKey (string _keyString)

  Set the Key from a string.
- byte[ ] GenerateKey ()

  Generates and returns a key which can be used with the algorithm.
- byte[ ] Encrypt (byte[ ] _data)

  Encrypts and returns encrypted data.
- byte[ ] Decrypt (byte[ ] _data)

  Decrypts and returns decrypted data.

Properties

- byte[ ] Key [get, set]

  The key to be used, either in encryption or decryption.
- string Name [get]

  The name of the algorithm.
- int KeySize [get]

  The maximum key size in bits.
- int Seed [get]

  The seed to be optionally used by algorithms, typically a hash of the encryption key. If an implementation of ICrypto↩ Provider is assymetric, it should still provide a symmetric seed.

5.15.1 Member Function Documentation

5.15.1.1 byte [ ] Stegosaurus.Cryptography.ICryptoProvider.Decrypt (byte[ ] *_data*)

Decrypts and returns decrypted data.

Implemented in Stegosaurus.Cryptography.AESProvider, Stegosaurus.Cryptography.RSAProvider, and Stegosaurus.↩ Cryptography.TripleDESProvider.

5.15.1.2 byte [ ] Stegosaurus.Cryptography.ICryptoProvider.Encrypt (byte[ ] *_data*)

Encrypts and returns encrypted data.

Implemented in Stegosaurus.Cryptography.RSAProvider, Stegosaurus.Cryptography.TripleDESProvider, and Stegosaurus.Cryptography.AESProvider.

5.15.1.3 byte [ ] Stegosaurus.Cryptography.ICryptoProvider.GenerateKey ( )

Generates and returns a key which can be used with the algorithm.

Implemented in Stegosaurus.Cryptography.RSAProvider, Stegosaurus.Cryptography.AESProvider, and Stegosaurus.Cryptography.TripleDESProvider.

5.15.1.4 void Stegosaurus.Cryptography.ICryptoProvider.SetKey (string *_keyString*)

Set the Key from a string.

Implemented in Stegosaurus.Cryptography.RSAProvider, Stegosaurus.Cryptography.AESProvider, and Stegosaurus.Cryptography.TripleDESProvider.

5.15.2 Property Documentation

5.15.2.1 byte [ ] Stegosaurus.Cryptography.ICryptoProvider.Key [get], [set]

The key to be used, either in encryption or decryption.

5.15.2.2 int Stegosaurus.Cryptography.ICryptoProvider.KeySize [get]

The maximum key size in bits.

5.15.2.3 string Stegosaurus.Cryptography.ICryptoProvider.Name [get]

The name of the algorithm.

5.15.2.4 int Stegosaurus.Cryptography.ICryptoProvider.Seed [get]

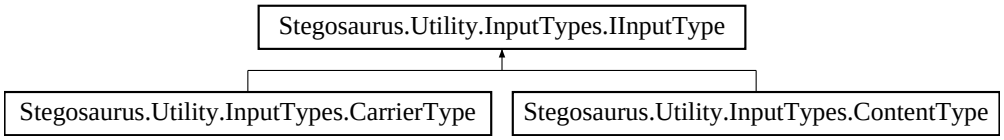
The seed to be optionally used by algorithms, typically a hash of the encryption key. If an implementation of ICryptoProvider is assymetric, it should still provide a symmetric seed.

The documentation for this interface was generated from the following file:

- Steganography/Stegosaurus/Cryptography/ICryptoProvider.cs

5.16 Stegosaurus.Utility.InputTypes.IInputType Interface Reference

Inheritance diagram for Stegosaurus.Utility.InputTypes.IInputType:



Properties

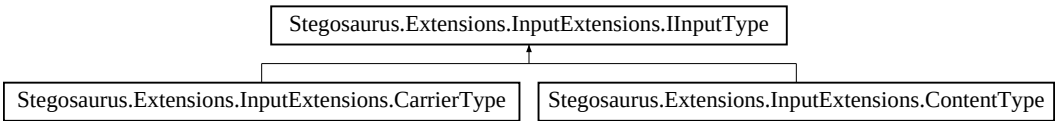
- string **FilePath** `[get, set]`

The documentation for this interface was generated from the following file:

- Steganography/Stegosaurus/Utility/InputTypes/IInputType.cs

5.17 Stegosaurus.Extensions.InputExtensions.IInputType Interface Reference

Inheritance diagram for Stegosaurus.Extensions.InputExtensions.IInputType:



Properties

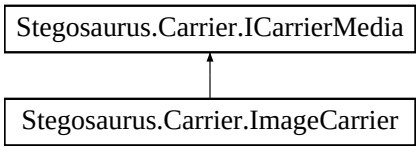
- string **FilePath** `[get, set]`

The documentation for this interface was generated from the following file:

- Steganography/Stegosaurus/Extensions/InputExtensions/IInputType.cs

5.18 Stegosaurus.Carrier.ImageCarrier Class Reference

Inheritance diagram for Stegosaurus.Carrier.ImageCarrier:



Public Member Functions

- ImageCarrier (Image _image)

  Construct ImageCarrier from an instance of Image.
- ImageCarrier (string _filePath)

  Gets file path to image file and passes instace of Image to constructor.
- void Decode ()

  Decodes the carrier media and sets ByteArray to the inner data.
- void Encode ()

  Moves data from ByteArray into innerImage.
- void SaveToFile (string _destination)

  Encodes and saves file to destination.

Public Attributes

- int **BytesPerSample** => 3
- Image Image => image

  Returns the inner instance of Image.

Properties

- byte[] **ByteArray** `[get, set]`

5.18.1 Constructor & Destructor Documentation

5.18.1.1 Stegosaurus.Carrier.ImageCarrier.ImageCarrier (Image *_image*)

Construct ImageCarrier from an instance of Image.

5.18.1.2 Stegosaurus.Carrier.ImageCarrier.ImageCarrier (string *_filePath*)

Gets file path to image file and passes instace of Image to constructor.

Parameters

_filePath	

5.18.2 Member Function Documentation

5.18.2.1 void Stegosaurus.Carrier.ImageCarrier.Decode ( )

Decodes the carrier media and sets ByteArray to the inner data.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.18.2.2 void Stegosaurus.Carrier.ImageCarrier.Encode ( )

Moves data from ByteArray into innerImage.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.18.2.3 void Stegosaurus.Carrier.ImageCarrier.SaveToFile (string *_destination*)

Encodes and saves file to destination.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.18.3 Member Data Documentation

5.18.3.1 Image Stegosaurus.Carrier.ImageCarrier.Image => image

Returns the inner instance of Image.

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

- Steganography/Stegosaurus/Carrier/ImageCarrier.cs

5.19 Stegosaurus.InputFile Class Reference

Public Member Functions

- InputFile (string _name, byte[ ] _content)
  A constructor to construct a InputFile from byte array.
- InputFile (string _filePath)
  A constructor to construct a InputFile from a file path.
- void SaveTo (string _destination)
  This method is used to save the file in the file system of the operating system.

Properties

- string Name `[get]`
  The name of the file.
- byte[ ] Content `[get]`
  A byte array containing the files contents.

5.19.1 Constructor & Destructor Documentation

5.19.1.1 Stegosaurus.InputFile.InputFile (string *_name,* byte[ ] *_content*)

A constructor to construct a InputFile from byte array.

5.19.1.2 Stegosaurus.InputFile.InputFile (string *_filePath*)

A constructor to construct a InputFile from a file path.

5.19.2 Member Function Documentation

5.19.2.1 void Stegosaurus.InputFile.SaveTo (string *_destination*)

This method is used to save the file in the file system of the operating system.

5.19.3 Property Documentation

5.19.3.1 byte [ ] Stegosaurus.InputFile.Content [get]

A byte array containing the files contents.

5.19.3.2 string Stegosaurus.InputFile.Name [get]

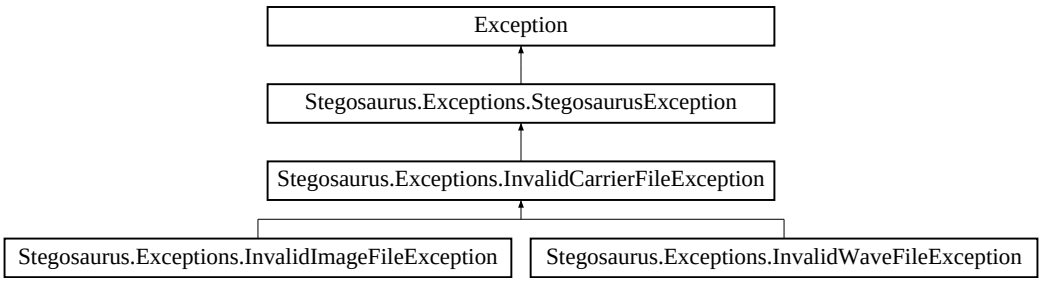
The name of the file.

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

- Steganography/Stegosaurus/InputFIle.cs

5.20 Stegosaurus.Exceptions.InvalidCarrierFileException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.InvalidCarrierFileException:



Public Member Functions

- **InvalidCarrierFileException** (string _message, string _fileName)

Properties

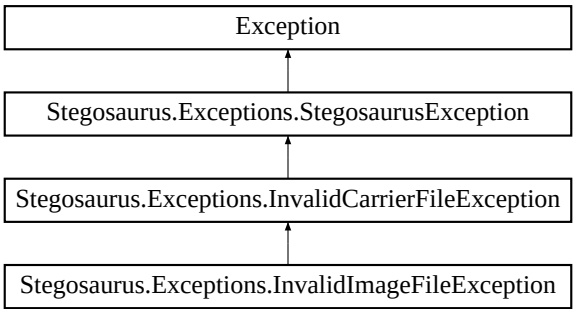
- string **FileName** `[get]`

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

- Steganography/Stegosaurus/Exceptions/InvalidCarrierFileException.cs

5.21 Stegosaurus.Exceptions.InvalidImageFileException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.InvalidImageFileException:



Public Member Functions

- **InvalidImageFileException** (string _message, string _fileName)

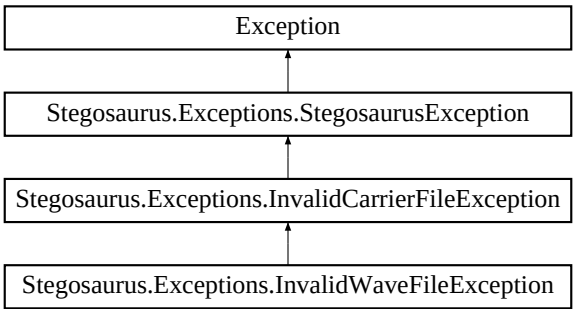
Additional Inherited Members

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

- Steganography/Stegosaurus/Exceptions/InvalidImageFileException.cs

5.22 Stegosaurus.Exceptions.InvalidWaveFileException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.InvalidWaveFileException:



Public Member Functions

- **InvalidWaveFileException** (string _message, string _fileName)

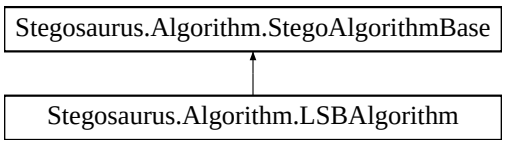
Additional Inherited Members

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

- Steganography/Stegosaurus/Exceptions/InvalidWaveFileException.cs

5.23 Stegosaurus.Algorithm.LSBAlgorithm Class Reference

Inheritance diagram for Stegosaurus.Algorithm.LSBAlgorithm:



Public Types

- enum BitValues : byte {
  First = 0x1, **Second** = 0x2, **Third** = 0x4, **Fourth** = 0x8,
  Fifth = 0x10, **Sixth** = 0x20, **Seventh** = 0x40, **Eighth** = 0x80 }

  Enum containing the different bit values.

Public Member Functions

- override void Embed (StegoMessage _message, IProgress< int > _progress, CancellationToken _ct)

  Embeds a StegoMessage in the public ByteArray of the CarrierMedia.
- override StegoMessage Extract ()

  Returns a StegoMessage by extracting from the public ByteArray of the CarrierMedia.
- override long ComputeBandwidth ()

  Returns the data capacity of the carrier media with the given algorithm.

Public Attributes

- override string **Name** => "Least Significant Bit"

Protected Attributes

- override byte[ ] **Signature** => new byte[ ] { 0x6C, 0x73, 0x62, 0x51 }

Properties

- BitValues WorkingBit [get, set]

  Get or set the bit that will be modified or read from.

5.23.1 Member Enumeration Documentation

5.23.1.1 enum Stegosaurus.Algorithm.LSBAlgorithm.BitValues : byte [strong]

Enum containing the different bit values.

5.23.2 Member Function Documentation

5.23.2.1 override long Stegosaurus.Algorithm.LSBAlgorithm.ComputeBandwidth ( ) [virtual]

Returns the data capacity of the carrier media with the given algorithm.

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.23.2.2 override void Stegosaurus.Algorithm.LSBAlgorithm.Embed (StegoMessage *_message*, IProgress< int > *_progress*, CancellationToken *_ct*) [virtual]

Embeds a StegoMessage in the public ByteArray of the CarrierMedia.

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.23.2.3 override StegoMessage Stegosaurus.Algorithm.LSBAlgorithm.Extract ( ) [virtual]

Returns a StegoMessage by extracting from the public ByteArray of the CarrierMedia.

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.23.3 Property Documentation

5.23.3.1 BitValues Stegosaurus.Algorithm.LSBAlgorithm.WorkingBit [get], [set]

Get or set the bit that will be modified or read from.

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

- Steganography/Stegosaurus/Algorithm/LSBAlgorithm.cs

5.24 Stegosaurus.Utility.RandomNumberList Class Reference

Public Member Functions

- RandomNumberList (int _seed, int _maxValue)

  Construct a RandomNumberList with a seed and maximum value.

Properties

- int Next [get]

  Get the next integer in the random number sequence. Throws a RandomNumbersOutOfRangeException if there are no numbers left to generate.

5.24.1 Constructor & Destructor Documentation

5.24.1.1 Stegosaurus.Utility.RandomNumberList.RandomNumberList (int *_seed,* int *_maxValue*)

Construct a RandomNumberList with a seed and maximum value.

5.24.2 Property Documentation

5.24.2.1 int Stegosaurus.Utility.RandomNumberList.Next [get]

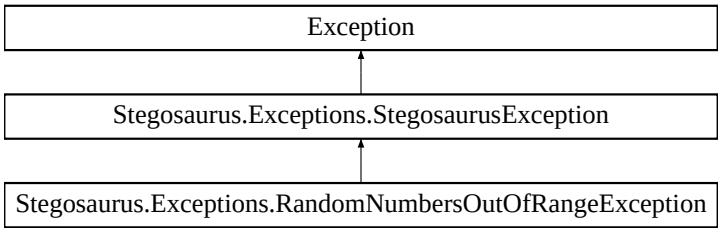
Get the next integer in the random number sequence. Throws a RandomNumbersOutOfRangeException if there are no numbers left to generate.

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

- Steganography/Stegosaurus/Utility/RandomNumberList.cs

5.25 Stegosaurus.Exceptions.RandomNumbersOutOfRangeException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.RandomNumbersOutOfRangeException:



Additional Inherited Members

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

- Steganography/Stegosaurus/Exceptions/RandomNumbersOutOfRangeException.cs

5.26 Stegosaurus.Cryptography.RSAKeyPair Class Reference

Properties

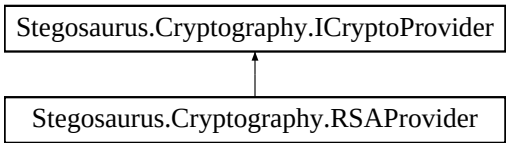
- string **PublicKey** `[get, set]`
- string **PrivateKey** `[get, set]`

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

- Steganography/Stegosaurus/Cryptography/RSAKeyPair.cs

5.27 Stegosaurus.Cryptography.RSAProvider Class Reference

Inheritance diagram for Stegosaurus.Cryptography.RSAProvider:



Public Member Functions

- byte[ ] Decrypt (byte[ ] _data)

  Decrypts and returns decrypted data.
- byte[ ] Encrypt (byte[ ] _data)

  Encrypts and returns encrypted data.
- void SetKey (string _keyString)

  Set the Key from a string.
- byte[ ] GenerateKey ()

  Generates and returns a key which can be used with the algorithm.

Static Public Member Functions

- static RSAKeyPair **GenerateKeys** (int _keySize)

Public Attributes

- string **Name** => "RSA"
- int Seed => Key == null ? 0 : Parameters.Modulus.ComputeHash()

  The same seed is needed for encryption and decryption. Since the public and private key share modulus, we use its hash as a seed.
- int **KeySize** => 2048

Properties

- byte[ ] **Key** `[get, set]`

5.27.1 Member Function Documentation

5.27.1.1 byte [ ] Stegosaurus.Cryptography.RSAProvider.Decrypt (byte[ ] *_data*)

Decrypts and returns decrypted data.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.27.1.2 byte [ ] Stegosaurus.Cryptography.RSAProvider.Encrypt (byte[ ] *_data*)

Encrypts and returns encrypted data.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.27.1.3 byte [ ] Stegosaurus.Cryptography.RSAProvider.GenerateKey ( )

Generates and returns a key which can be used with the algorithm.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.27.1.4 void Stegosaurus.Cryptography.RSAProvider.SetKey (string *_keyString*)

Set the Key from a string.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.27.2 Member Data Documentation

5.27.2.1 int Stegosaurus.Cryptography.RSAProvider.Seed => Key == null ? 0 : Parameters.Modulus.ComputeHash()

The same seed is needed for encryption and decryption. Since the public and private key share modulus, we use its hash as a seed.

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

- Steganography/Stegosaurus/Cryptography/RSAProvider.cs

5.28 Stegosaurus.Algorithm.GraphTheory.Sample Class Reference

Public Member Functions

- **Sample** (byte[ ] _bytes)

Public Attributes

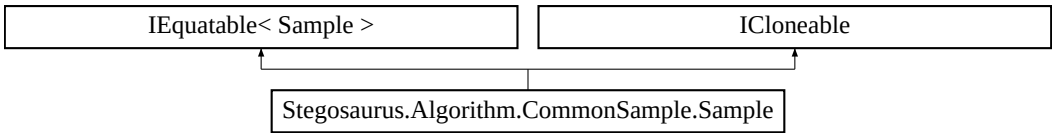
- byte[ ] **Bytes**
- short **Value**
- short **TargetValue**

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

- Steganography/Stegosaurus/Algorithm/GraphTheory/Sample.cs

5.29 Stegosaurus.Algorithm.CommonSample.Sample Class Reference

Inheritance diagram for Stegosaurus.Algorithm.CommonSample.Sample:



Public Member Functions

- **Sample** (params byte[ ] _values)
- void **ForceChanges** ()
- void **UpdateModValue** ()
- int **DistanceTo** (Sample otherSample)
- override int **GetHashCode** ()
- bool **Equals** (Sample other)
- object **Clone** ()

Static Public Member Functions

- static List< Sample > GetSampleListFrom (ICarrierMedia _carrierMedia)

  Returns a list of all samples in the CarrierMedia.

Properties

- byte[ ] **Values** `[get, set]`
- int **LastDistance** `[get, set]`
- int **ModValue** `[get, set]`

5.29.1 Member Function Documentation

5.29.1.1 static List<Sample> Stegosaurus.Algorithm.CommonSample.Sample.GetSampleListFrom (ICarrierMedia _carrierMedia) [static]

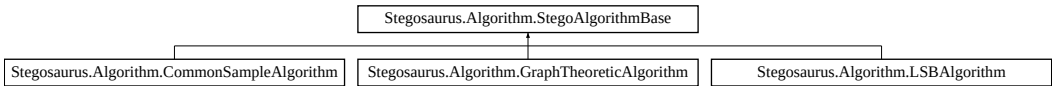
Returns a list of all samples in the CarrierMedia.

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

- Steganography/Stegosaurus/Algorithm/CommonSample/Sample.cs

5.30 Stegosaurus.Algorithm.StegoAlgorithmBase Class Reference

Inheritance diagram for Stegosaurus.Algorithm.StegoAlgorithmBase:



Public Member Functions

- abstract long ComputeBandwidth ()

  Returns the data capacity of the carrier media with the given algorithm.
- abstract void Embed (StegoMessage _message, IProgress< int > _progress, CancellationToken _ct)

  Embeds a StegoMessage in the public ByteArray of the CarrierMedia.
- abstract StegoMessage Extract ()

  Returns a StegoMessage by extracting from the public ByteArray of the CarrierMedia.

Protected Attributes

- virtual int Seed => CryptoProvider?.Seed ?? 0

  Get Seed used in pseudo-random pattern.

Properties

- abstract string Name [get]

  Get the name of the algorithm.
- virtual ICryptoProvider CryptoProvider [get, set]

  Get or set crypto provider.
- virtual ICarrierMedia CarrierMedia [get, set]

  Get or set CarrierMedia.
- abstract byte[] Signature [get]

  Get signature.

5.30.1 Member Function Documentation

5.30.1.1 abstract long Stegosaurus.Algorithm.StegoAlgorithmBase.ComputeBandwidth ( ) [pure virtual]

Returns the data capacity of the carrier media with the given algorithm.

Implemented in Stegosaurus.Algorithm.CommonSampleAlgorithm, Stegosaurus.Algorithm.LSBAlgorithm, and Stegosaurus.Algorithm.GraphTheoreticAlgorithm.

5.30.1.2 abstract void Stegosaurus.Algorithm.StegoAlgorithmBase.Embed (StegoMessage *_message,* IProgress< int > *_progress,* CancellationToken *_ct*) [pure virtual]

Embeds a StegoMessage in the public ByteArray of the CarrierMedia.

Implemented in Stegosaurus.Algorithm.GraphTheoreticAlgorithm, Stegosaurus.Algorithm.LSBAlgorithm, and Stegosaurus.Algorithm.CommonSampleAlgorithm.

5.30.1.3 abstract StegoMessage Stegosaurus.Algorithm.StegoAlgorithmBase.Extract ( ) [pure virtual]

Returns a StegoMessage by extracting from the public ByteArray of the CarrierMedia.

Implemented in Stegosaurus.Algorithm.GraphTheoreticAlgorithm, Stegosaurus.Algorithm.CommonSample↩Algorithm, and Stegosaurus.Algorithm.LSBAlgorithm.

5.30.2 Member Data Documentation

5.30.2.1 virtual int Stegosaurus.Algorithm.StegoAlgorithmBase.Seed => CryptoProvider?.Seed ?? 0 [protected]

Get Seed used in pseudo-random pattern.

5.30.3 Property Documentation

5.30.3.1 virtual ICarrierMedia Stegosaurus.Algorithm.StegoAlgorithmBase.CarrierMedia [get], [set]

Get or set CarrierMedia.

5.30.3.2 virtual ICryptoProvider Stegosaurus.Algorithm.StegoAlgorithmBase.CryptoProvider [get], [set]

Get or set crypto provider.

5.30.3.3 abstract string Stegosaurus.Algorithm.StegoAlgorithmBase.Name [get]

Get the name of the algorithm.

5.30.3.4 abstract byte [ ] Stegosaurus.Algorithm.StegoAlgorithmBase.Signature [get], [protected]

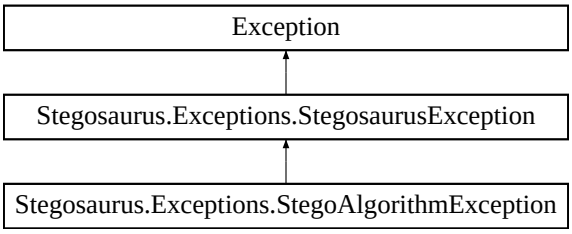
Get signature.

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

- Steganography/Stegosaurus/Algorithm/StegoAlgorithmBase.cs

5.31 Stegosaurus.Exceptions.StegoAlgorithmException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.StegoAlgorithmException:



Public Member Functions

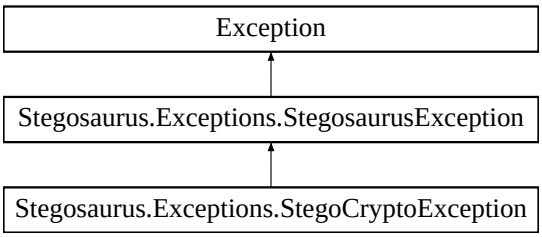
- **StegoAlgorithmException** (string message)

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

- Steganography/Stegosaurus/Exceptions/StegoAlgorithmException.cs

5.32 Stegosaurus.Exceptions.StegoCryptoException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.StegoCryptoException:



Public Member Functions

- **StegoCryptoException** (string message)
- **StegoCryptoException** (string message, Exception inner)

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

- Steganography/Stegosaurus/Exceptions/StegoCryptoException.cs

5.33 Stegosaurus.StegoMessage Class Reference

Public Types

- enum **StegoMessageFlags** { **Encoded** = 0x1, **Compressed** = 0x2, **Encrypted** = 0x4, **Signed** = 0x8 }

Public Member Functions

- StegoMessage ()

  Empty constructor.
- StegoMessage (string _textMessage)

  This constructer is used if only a text message is applied.
- StegoMessage (byte[ ] _fromArray, ICryptoProvider _cryptoProvider=null)

  This constructer takes a byte array containing the data to add to the StegoMessage.
- byte[ ] ToByteArray (ICryptoProvider _cryptoProvider=null)

  Converts text and/or file(s) into a byte array and combines them using a List. First part of the byte array contains the message file(s). The last part of the byte array is the text message if there is any.
- long GetCompressedSize ()

  This method returns the compressed size of the data stored in this StegoMessage.

Public Attributes

- StegoMessageFlags **Flags** = new List<InputFile>()

Properties

- string TextMessage `[get, set]`

  This is the text message that can be saved in the StegoMessage.
- List< InputFile > InputFiles `[get]`

  This is where each file will be stored in the StegoMessage.
- string PrivateSigningKey `[get, set]`

  TODO: Write summary.

5.33.1 Constructor & Destructor Documentation

5.33.1.1 Stegosaurus.StegoMessage.StegoMessage ( )

Empty constructor.

5.33.1.2 Stegosaurus.StegoMessage.StegoMessage (string *_textMessage*)

This constructer is used if only a text message is applied.

5.33.1.3 Stegosaurus.StegoMessage.StegoMessage (byte[ ] *_fromArray*, ICryptoProvider *_cryptoProvider* = `null`)

This constructer takes a byte array containing the data to add to the StegoMessage.

5.33.2 Member Function Documentation

5.33.2.1 long Stegosaurus.StegoMessage.GetCompressedSize ( )

This method returns the compressed size of the data stored in this StegoMessage.

5.33.2.2 byte [ ] Stegosaurus.StegoMessage.ToByteArray (ICryptoProvider *_cryptoProvider* = `null`)

Converts text and/or file(s) into a byte array and combines them using a List. First part of the byte array contains the message file(s). The last part of the byte array is the text message if there is any.

5.33.3 Property Documentation

5.33.3.1 List<InputFile> Stegosaurus.StegoMessage.InputFiles [get]

This is where each file will be stored in the StegoMessage.

5.33.3.2 string Stegosaurus.StegoMessage.PrivateSigningKey [get], [set]

TODO: Write summary.

5.33.3.3 string Stegosaurus.StegoMessage.TextMessage [get], [set]

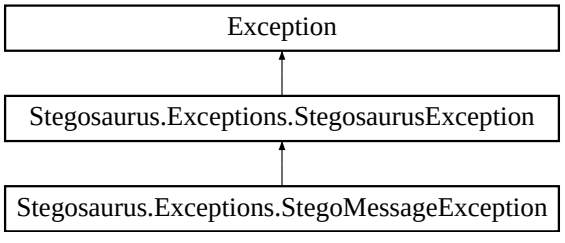
This is the text message that can be saved in the StegoMessage.

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

- Steganography/Stegosaurus/StegoMessage.cs

5.34 Stegosaurus.Exceptions.StegoMessageException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.StegoMessageException:



Public Member Functions

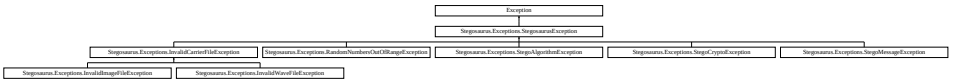
- **StegoMessageException** (string message)
- **StegoMessageException** (string message, Exception inner)

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

- Steganography/Stegosaurus/Exceptions/StegoMessageException.cs

5.35 Stegosaurus.Exceptions.StegosaurusException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.StegosaurusException:



Public Member Functions

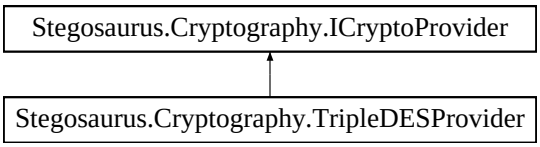
- **StegosaurusException** (string message)
- **StegosaurusException** (string message, Exception inner)

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

- Steganography/Stegosaurus/Exceptions/StegosaurusException.cs

5.36 Stegosaurus.Cryptography.TripleDESProvider Class Reference

Inheritance diagram for Stegosaurus.Cryptography.TripleDESProvider:



Public Member Functions

- byte[ ] Decrypt (byte[ ] _data)

  Decrypts and returns decrypted data.
- byte[ ] Encrypt (byte[ ] _data)

  Encrypts and returns encrypted data.
- byte[ ] GenerateKey ()

  Generates and returns a key which can be used with the algorithm.
- void SetKey (string _keyString)

  Set the Key from a string.

Public Attributes

- string **Name** => "TripleDES"
- int **Seed** => Key == null ? 0 : Key.ComputeHash()
- int **KeySize** => 192

Properties

- byte[ ] **Key** `[get, set]`

5.36.1 Member Function Documentation

5.36.1.1 byte [ ] Stegosaurus.Cryptography.TripleDESProvider.Decrypt (byte[ ] *_data*)

Decrypts and returns decrypted data.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.36.1.2 byte [ ] Stegosaurus.Cryptography.TripleDESProvider.Encrypt (byte[ ] *_data*)

Encrypts and returns encrypted data.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.36.1.3 byte [ ] Stegosaurus.Cryptography.TripleDESProvider.GenerateKey ( )

Generates and returns a key which can be used with the algorithm.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.36.1.4 void Stegosaurus.Cryptography.TripleDESProvider.SetKey (string *_keyString*)

Set the Key from a string.

Implements Stegosaurus.Cryptography.ICryptoProvider.

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

- Steganography/Stegosaurus/Cryptography/TripleDESProvider.cs

5.37 Stegosaurus.Algorithm.GraphTheory.Vertex Class Reference

Public Member Functions

- **Vertex** (Sample[ ] _samples)
- override string **ToString** ()

Public Attributes

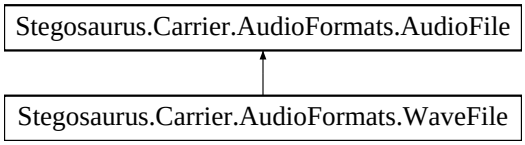
- Sample[ ] **Samples**
- List< Edge > **Edges** = new List<Edge>()
- short **Value**
- short **ValueDif**
- int **numEdges** = 0
- bool **IsValid**

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

- Steganography/Stegosaurus/Algorithm/GraphTheory/Vertex.cs

5.38 Stegosaurus.Carrier.AudioFormats.WaveFile Class Reference

Inheritance diagram for Stegosaurus.Carrier.AudioFormats.WaveFile:



Public Member Functions

- WaveFile (string _filePath)

  Construct a WaveFile from a file path.
- override void Parse (string _filePath)

  Parses an audio file by reading its headers and samples.
- override byte[ ] ToArray ()

  Reconstructs and returns the entire byte array of the file, including headers.

Properties

- int ChunkSize `[get]`

  Get or set the chunk size.
- int FormatSubChunkSize `[get]`

  Get or set the size of the format subchunk.
- int DataSubChunkSize `[get]`

  Get or set the size of the data subchunk.
- short AudioFormat `[get]`

  Get or set the audio format.

Additional Inherited Members

5.38.1 Constructor & Destructor Documentation

5.38.1.1 Stegosaurus.Carrier.AudioFormats.WaveFile.WaveFile (string *_filePath*)

Construct a WaveFile from a file path.

5.38.2 Member Function Documentation

5.38.2.1 override void Stegosaurus.Carrier.AudioFormats.WaveFile.Parse (string *_filePath*) [virtual]

Parses an audio file by reading its headers and samples.

Implements Stegosaurus.Carrier.AudioFormats.AudioFile.

5.38.2.2 override byte [ ] Stegosaurus.Carrier.AudioFormats.WaveFile.ToArray ( ) [virtual]

Reconstructs and returns the entire byte array of the file, including headers.

Implements Stegosaurus.Carrier.AudioFormats.AudioFile.

5.38.3 Property Documentation

5.38.3.1 short Stegosaurus.Carrier.AudioFormats.WaveFile.AudioFormat [get]

Get or set the audio format.

5.38.3.2 int Stegosaurus.Carrier.AudioFormats.WaveFile.ChunkSize [get]

Get or set the chunk size.

5.38.3.3 int Stegosaurus.Carrier.AudioFormats.WaveFile.DataSubChunkSize [get]

Get or set the size of the data subchunk.

5.38.3.4 int Stegosaurus.Carrier.AudioFormats.WaveFile.FormatSubChunkSize [get]

Get or set the size of the format subchunk.

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

- Steganography/Stegosaurus/Carrier/AudioFormats/WaveFile.cs

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