Stegosaurus

1.0

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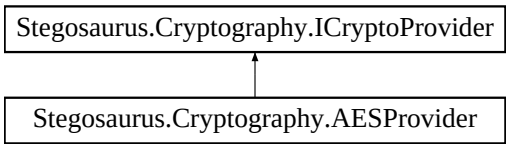
Class Documentation

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?.ComputeHash() ?? 0
- int **HeaderSize** => Key == null ? 0 : 16
- 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Cryptography/AESProvider.cs

5.2 Stegosaurus.Carrier.AudioCarrier Class Reference

Inheritance diagram for Stegosaurus.Carrier.AudioCarrier:

Public Member Functions

- bool IsExtensionCompatible (string _extension)
  Check if a certain extension is compatible with this carrier media.
- void LoadFromFile (string _filePath)
  Open file from specified path.
- 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.

Public Attributes

- string **OutputExtension** => ".wav"
- Image **Thumbnail** => IconExtractor.ExtractIcon(OutputExtension).ToBitmap()
- int **BytesPerSample** => audioFile.BitsPerSample / 8

Properties

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

5.2.1 Member Function Documentation

5.2.1.1 void Stegosaurus.Carrier.AudioCarrier.Decode ( )

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

Implements Stegosaurus.Carrier.ICarrierMedia.

5.2.1.2 void Stegosaurus.Carrier.AudioCarrier.Encode ( )

Encodes ByteArray back into the carrier media.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.2.1.3 bool Stegosaurus.Carrier.AudioCarrier.IsExtensionCompatible (string *_extension*)

Check if a certain extension is compatible with this carrier media.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.2.1.4 void Stegosaurus.Carrier.AudioCarrier.LoadFromFile (string *_filePath*)

Open file from specified path.

Implements Stegosaurus.Carrier.ICarrierMedia.

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

Saves the carrier media to the specified destination.

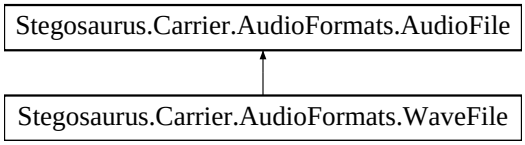
Implements Stegosaurus.Carrier.ICarrierMedia.

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

- C:/Development/Uni/P2/Steganography/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]

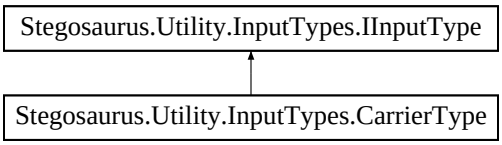
Get or set the sample rate.

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

- C:/Development/Uni/P2/Steganography/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

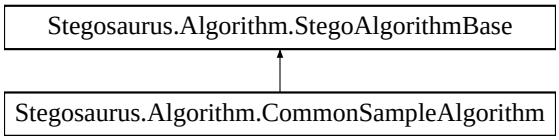
- string **FilePath** [get, set]

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Utility/InputTypes/CarrierType.cs

5.5 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.

5.5.1 Member Function Documentation

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

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

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.5.1.2 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.

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

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

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.5.2 Property Documentation

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

Get or set the maximum distance.

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

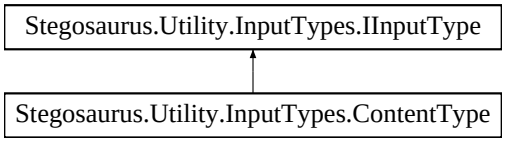
Get or set the maximum sample count.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Algorithm/CommonSampleAlgorithm.↩ cs

5.6 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Utility/InputTypes/ContentType.cs

5.7 Stegosaurus.Algorithm.GraphTheory.Edge Class Reference

Public Member Functions

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

Public Attributes

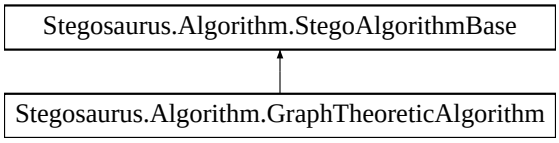
- int[ ] **Vertices**
- short **Weight**
- byte[ ] **BestSwaps**

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Algorithm/GraphTheory/Edge.cs

5.8 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"

Protected Attributes

- override byte[ ] **Signature** => new byte[ ] { 0x47, 0x54, 0x41, 0x6C }

Properties

- byte **SamplesPerVertex** `[get, set]`
- byte **MessageBitsPerVertex** `[get, set]`
- int **DistanceMax** `[get, set]`
- int **DistancePrecision** `[get, set]`
- int **VerticesPerMatching** `[get, set]`

5.8.1 Member Function Documentation

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

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

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.8.1.2 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.

5.8.1.3 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Algorithm/GraphTheoreticAlgorithm.cs

5.9 Stegosaurus.Carrier.ICarrierMedia Interface Reference

Inheritance diagram for Stegosaurus.Carrier.ICarrierMedia:

Public Member Functions

- bool IsExtensionCompatible (string _extension)

  Check if a certain extension is compatible with this carrier media.
- void LoadFromFile (string _filePath)

  Open file from specified path.
- 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.
- string OutputExtension [get]

  The default output extension for this carrier media. Example:
- Image Thumbnail [get]

  Get the thumbnail associated with this carrier media.
- 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.

5.9.1 Member Function Documentation

5.9.1.1 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.

5.9.1.2 void Stegosaurus.Carrier.ICarrierMedia.Encode ( )

Encodes ByteArray back into the carrier media.

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

5.9.1.3 bool Stegosaurus.Carrier.ICarrierMedia.IsExtensionCompatible (string *_extension*)

Check if a certain extension is compatible with this carrier media.

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

5.9.1.4 void Stegosaurus.Carrier.ICarrierMedia.LoadFromFile (string *_filePath*)

Open file from specified path.

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

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

Saves the carrier media to the specified destination.

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

5.9.2 Property Documentation

5.9.2.1 byte [ ] Stegosaurus.Carrier.ICarrierMedia.ByteArray [get], [set]

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

5.9.2.2 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.

5.9.2.3 string Stegosaurus.Carrier.ICarrierMedia.OutputExtension [get]

The default output extension for this carrier media. Example:

5.9.2.4 Image Stegosaurus.Carrier.ICarrierMedia.Thumbnail [get]

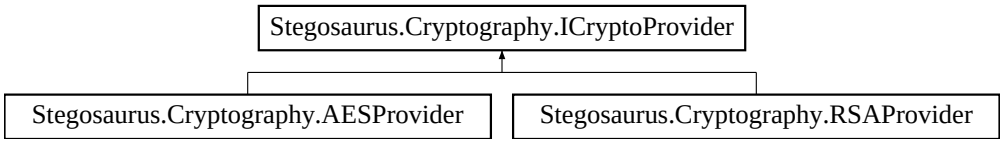
Get the thumbnail associated with this carrier media.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Carrier/ICarrierMedia.cs

5.10 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.
- int HeaderSize [get]

  The size of the header.
- 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.

5.10.1 Member Function Documentation

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

Decrypts and returns decrypted data.

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

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

Encrypts and returns encrypted data.

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

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

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

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

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

Set the Key from a string.

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

5.10.2 Property Documentation

5.10.2.1 int Stegosaurus.Cryptography.ICryptoProvider.HeaderSize [get]

The size of the header.

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

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

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

The maximum key size in bits.

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

The name of the algorithm.

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

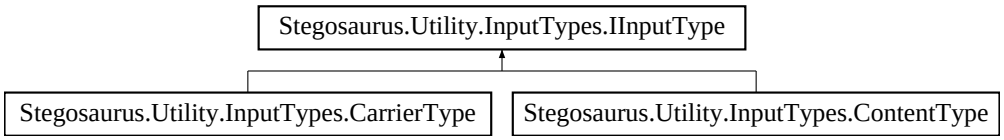
The seed to be optionally used by algorithms, typically a hash of the encryption key. If an implementation of ICryptoProvider is assymetric, it should still provide a symmetric seed.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Cryptography/ICryptoProvider.cs

5.11 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Utility/InputTypes/IInputType.cs

5.12 Stegosaurus.Carrier.ImageCarrier Class Reference

Inheritance diagram for Stegosaurus.Carrier.ImageCarrier:

Public Member Functions

- unsafe void Decode ()

  Decodes the carrier media and sets ByteArray to the inner data.
- bool IsExtensionCompatible (string _extension)

  Check if a certain extension is compatible with this carrier media.
- void LoadFromFile (string _filePath)

  Open file from specified path.
- unsafe void Encode ()

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

  Saves the carrier media to the specified destination.

Public Attributes

- string **OutputExtension** => ".png"
- Image **Thumbnail** => ImageData
- int **BytesPerSample** => 3

Properties

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

  Returns the inner instance of Image.

5.12.1 Member Function Documentation

5.12.1.1 unsafe void Stegosaurus.Carrier.ImageCarrier.Decode ( )

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

Implements Stegosaurus.Carrier.ICarrierMedia.

5.12.1.2 unsafe void Stegosaurus.Carrier.ImageCarrier.Encode ( )

Encodes ByteArray back into the carrier media.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.12.1.3 bool Stegosaurus.Carrier.ImageCarrier.IsExtensionCompatible (string *_extension*)

Check if a certain extension is compatible with this carrier media.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.12.1.4 void Stegosaurus.Carrier.ImageCarrier.LoadFromFile (string *_filePath*)

Open file from specified path.

Implements Stegosaurus.Carrier.ICarrierMedia.

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

Saves the carrier media to the specified destination.

Implements Stegosaurus.Carrier.ICarrierMedia.

5.12.2 Property Documentation

5.12.2.1 Bitmap Stegosaurus.Carrier.ImageCarrier.ImageData [get], [set]

Returns the inner instance of Image.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Carrier/ImageCarrier.cs

5.13 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.

5.13.1 Constructor & Destructor Documentation

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

A constructor to construct a InputFile from byte array.

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

A constructor to construct a InputFile from a file path.

5.13.2 Member Function Documentation

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

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

5.13.3 Property Documentation

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

A byte array containing the files contents.

5.13.3.2 string Stegosaurus.InputFile.Name [get]

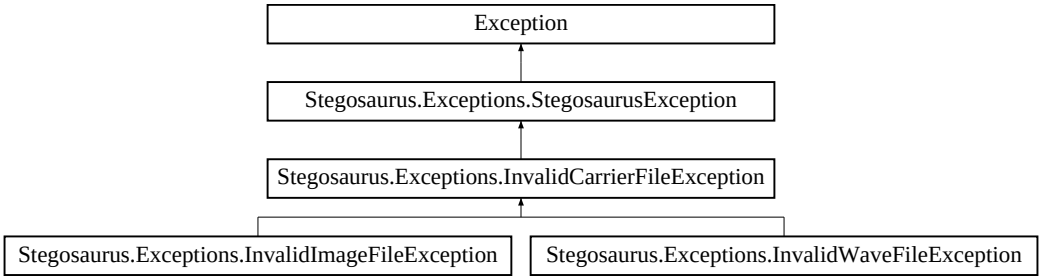
The name of the file.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/InputFIle.cs

5.14 Stegosaurus.Exceptions.InvalidCarrierFileException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.InvalidCarrierFileException:



Public Member Functions

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

Properties

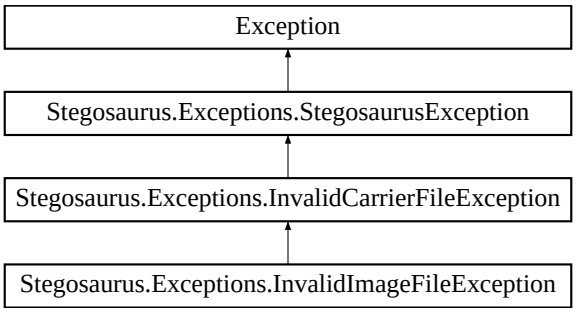
- string **FileName** [get]

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Exceptions/InvalidCarrierFileException.↩ cs

5.15 Stegosaurus.Exceptions.InvalidImageFileException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.InvalidImageFileException:



Public Member Functions

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

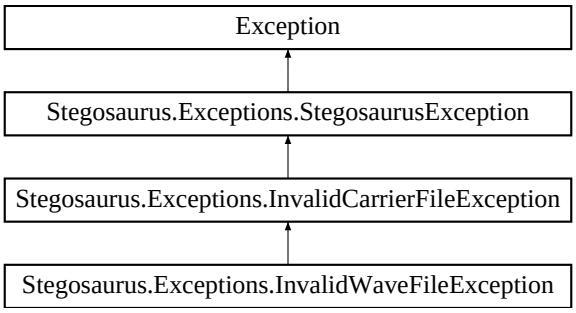
Additional Inherited Members

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Exceptions/InvalidImageFileException.cs

5.16 Stegosaurus.Exceptions.InvalidWaveFileException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.InvalidWaveFileException:



Public Member Functions

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

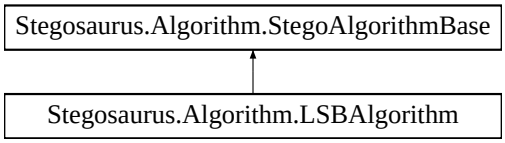
Additional Inherited Members

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Exceptions/InvalidWaveFileException.cs

5.17 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.

5.17.1 Member Enumeration Documentation

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

Enum containing the different bit values.

5.17.2 Member Function Documentation

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

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

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.17.2.2 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.

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

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

Implements Stegosaurus.Algorithm.StegoAlgorithmBase.

5.17.3 Property Documentation

5.17.3.1 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Algorithm/LSBAlgorithm.cs

5.18 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.

5.18.1 Constructor & Destructor Documentation

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

Construct a RandomNumberList with a seed and maximum value.

5.18.2 Property Documentation

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

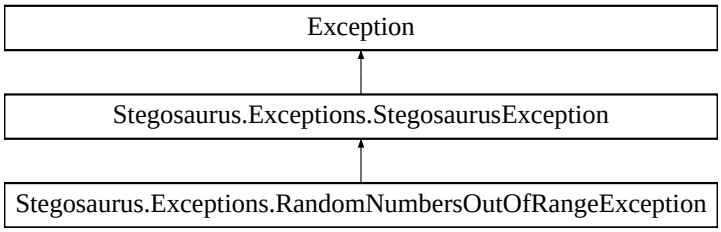
Get the next integer in the random number sequence. Throws a RandomNumbersOutOfRangeException if there are no numbers left to generate.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Utility/RandomNumberList.cs

5.19 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Exceptions/RandomNumbersOutOf↩ RangeException.cs

5.20 Stegosaurus.Cryptography.RSAKeyPair Class Reference

Properties

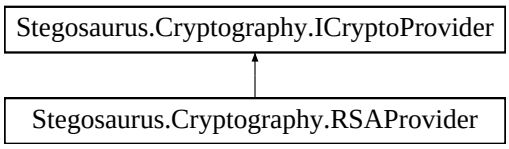
- string **PublicKey** `[get, set]`
- string **PrivateKey** `[get, set]`

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Cryptography/RSAKeyPair.cs

5.21 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.
- byte[ ] SignData (byte[ ] _originalData)

  Sign data using a private key.
- bool VerifyData (byte[ ] _originalData, byte[ ] _signedData)

  Verify data using a public key.
- 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)

  Generate a valid RSA keypair.

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 **HeaderSize** => Key == null ? 0 : symmetricAlgorithm.KeySize / 8 + symmetricAlgorithm.HeaderSize
- int **KeySize** => 2048

Properties

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

5.21.1 Member Function Documentation

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

Decrypts and returns decrypted data.

Implements Stegosaurus.Cryptography.ICryptoProvider.

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

Encrypts and returns encrypted data.

Implements Stegosaurus.Cryptography.ICryptoProvider.

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

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

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.21.1.4 static RSAKeyPair Stegosaurus.Cryptography.RSAProvider.GenerateKeys (int *_keySize*) `[static]`

Generate a valid RSA keypair.

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

Set the Key from a string.

Implements Stegosaurus.Cryptography.ICryptoProvider.

5.21.1.6 byte [ ] Stegosaurus.Cryptography.RSAProvider.SignData (byte[ ] *_originalData*)

Sign data using a private key.

5.21.1.7 bool Stegosaurus.Cryptography.RSAProvider.VerifyData (byte[ ] *_originalData,* byte[ ] *_signedData*)

Verify data using a public key.

5.21.2 Member Data Documentation

5.21.2.1 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Cryptography/RSAProvider.cs

5.22 Stegosaurus.Algorithm.Sample Class Reference

Public Member Functions

- **Sample** (byte[ ] _values)
- void **UpdateModValue** (byte _bitwiseModFactor)
- short **DistanceTo** (Sample _otherSample)
- override int **GetHashCode** ()
- bool **Equals** (Sample _other)
- object **Clone** ()
- void Swap (Sample _otherSample)

  Swap the values of this sample with another sample.

Static Public Member Functions

- static List< Sample > GetSampleListFrom (ICarrierMedia _carrierMedia, byte _bitwiseModFactor)

  Returns a list of all samples in the CarrierMedia.

Public Attributes

- byte[ ] **Values**
- byte **ModValue**
- byte **TargetModValue**
- short **LastDistance**

5.22.1 Member Function Documentation

5.22.1.1 static List<Sample> Stegosaurus.Algorithm.Sample.GetSampleListFrom (ICarrierMedia *_carrierMedia,* byte *_bitwiseModFactor*) [static]

Returns a list of all samples in the CarrierMedia.

5.22.1.2 void Stegosaurus.Algorithm.Sample.Swap (Sample *_otherSample*)

Swap the values of this sample with another sample.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Algorithm/Sample.cs

5.23 Stegosaurus.Cryptography.SavedPublicKey Class Reference

Public Member Functions

- SavedPublicKey (string _alias, string _key)
  Constructs a new SavedPublicKey.

Properties

- string Alias `[get]`
  The Alias of the owner of this public key.
- string Key `[get]`
  The public Key used to verify data.

5.23.1 Constructor & Destructor Documentation

5.23.1.1 Stegosaurus.Cryptography.SavedPublicKey.SavedPublicKey (string *_alias,* string *_key*)

Constructs a new SavedPublicKey.

5.23.2 Property Documentation

5.23.2.1 string Stegosaurus.Cryptography.SavedPublicKey.Alias `[get]`

The Alias of the owner of this public key.

5.23.2.2 string Stegosaurus.Cryptography.SavedPublicKey.Key `[get]`

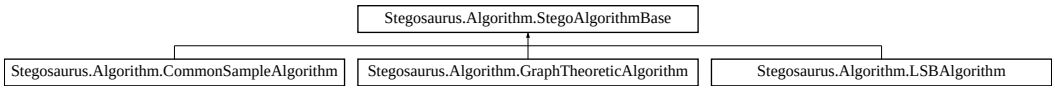
The public Key used to verify data.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Cryptography/SavedPublicKey.cs

5.24 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.

5.24.1 Member Function Documentation

5.24.1.1 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.

5.24.1.2 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.

5.24.1.3 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.

5.24.2 Member Data Documentation

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

Get Seed used in pseudo-random pattern.

5.24.3 Property Documentation

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

Get or set CarrierMedia.

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

Get or set crypto provider.

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

Get the name of the algorithm.

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

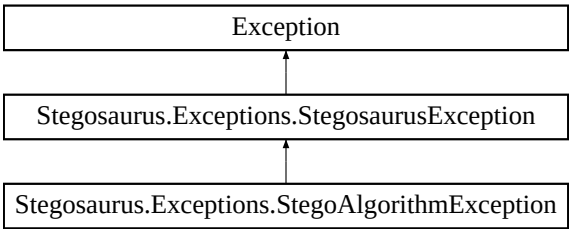
Get signature.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Algorithm/StegoAlgorithmBase.cs

5.25 Stegosaurus.Exceptions.StegoAlgorithmException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.StegoAlgorithmException:



Public Member Functions

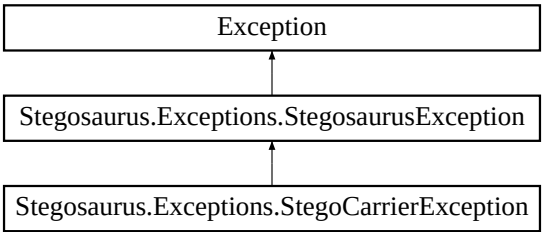
- **StegoAlgorithmException** (string message)

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Exceptions/StegoAlgorithmException.cs

5.26 Stegosaurus.Exceptions.StegoCarrierException Class Reference

Inheritance diagram for Stegosaurus.Exceptions.StegoCarrierException:



Public Member Functions

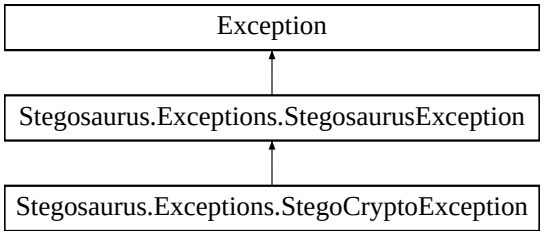
- **StegoCarrierException** (string _message)

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Exceptions/StegoCarrierException.cs

5.27 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Exceptions/StegoCryptoException.cs

5.28 Stegosaurus.StegoMessage Class Reference

Public Types

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

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**

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 = new List<InputFile>() `[get, set]`

  Private Signing Key used to verify the authenticity of the sender.
- string SignedBy `[get]`

  Indicates who has signed this message, if any.
- StegoMessageSignState SignState `[get]`

  Indicates whether the message has been signed or not.

5.28.1 Constructor & Destructor Documentation

5.28.1.1 Stegosaurus.StegoMessage.StegoMessage ( )

Empty constructor.

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

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

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

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

5.28.2 Member Function Documentation

5.28.2.1 long Stegosaurus.StegoMessage.GetCompressedSize ( )

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

5.28.2.2 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.

5.28.3 Property Documentation

5.28.3.1 List<InputFile> Stegosaurus.StegoMessage.InputFiles `[get]`

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

5.28.3.2 string Stegosaurus.StegoMessage.PrivateSigningKey = new List<InputFile>() `[get]`, `[set]`

Private Signing Key used to verify the authenticity of the sender.

5.28.3.3 string Stegosaurus.StegoMessage.SignedBy `[get]`

Indicates who has signed this message, if any.

5.28.3.4 StegoMessageSignState Stegosaurus.StegoMessage.SignState `[get]`

Indicates whether the message has been signed or not.

5.28.3.5 string Stegosaurus.StegoMessage.TextMessage `[get]`, `[set]`

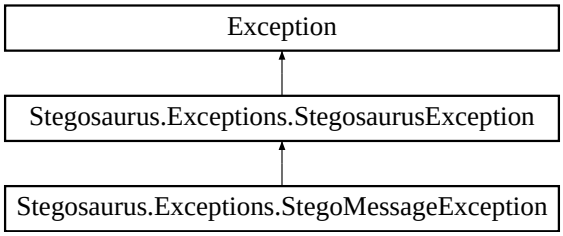
This is the text message that can be saved in the StegoMessage.

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/StegoMessage.cs

5.29 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Exceptions/StegoMessageException.↩ cs

5.30 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Exceptions/StegosaurusException.cs

5.31 Stegosaurus.Algorithm.GraphTheory.Vertex Class Reference

Public Member Functions

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

Public Attributes

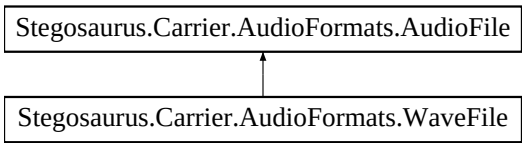
- Sample[ ] **Samples**
- List< Edge > **Edges** = new List<Edge>()
- byte **Value**
- bool **IsValid**

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

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Algorithm/GraphTheory/Vertex.cs

5.32 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

5.32.1 Constructor & Destructor Documentation

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

Construct a WaveFile from a file path.

5.32.2 Member Function Documentation

5.32.2.1 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.

5.32.2.2 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.

5.32.3 Property Documentation

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

Get or set the audio format.

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

Get or set the chunk size.

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

Get or set the size of the data subchunk.

5.32.3.4 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:

- C:/Development/Uni/P2/Steganography/Steganography/Stegosaurus/Carrier/AudioFormats/WaveFile.cs

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