

# Namespace ProVAL.Clarity.Api

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### [PavementImageInfo](#)

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Contains all data extracted from a file.

### [PavementSurfaceBuilder](#)

Creates a PavementSurface object.

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Validates the header data from a PSI file.

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

## Interfaces

### [IClarityImage](#)

Provides properties and methods to read and write image files.

### [IClarityImageFactory](#)

Provides methods to create IClarityImage objects.

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## Enums

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# Enum Codec2d

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum Codec2d : byte
```

## Fields

BinUncompressed = 1

BinZip = 2

Jpeg = 3

Png = 4

Undefined = 0

# Enum Codec3d

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum Codec3d : byte
```

## Fields

BinUncompressed = 1

BinZip = 2

Jpeg2000 = 5

OpenCrgUncompressed = 3

OpenCrgZip = 4

Undefined = 0

# Enum DataBitDepth2d

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum DataBitDepth2d : byte
```

## Fields

Depth8 = 8

# Enum DataBitDepth3d

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum DataBitDepth3d : byte
```

## Fields

Depth16 = 16

# Class GpsCoordinateHelpers

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll








Helper methods related to geographical coordinates

```
public static class GpsCoordinateHelpers
```

## Inheritance

[object](#)  ← GpsCoordinateHelpers

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Methods

### GetLatitude(double, double, double, string)

```
public static double GetLatitude(double degrees, double minutes, double seconds, string reference)
```

## Parameters

degrees [double](#) 

minutes [double](#) 

seconds [double](#) 

reference [string](#) 

N for positive latitudes, S for negative latitudes.

## Returns

[double](#) 

The latitude in decimal degrees; otherwise NaN.

### GetLongitude(double, double, double, string)

```
public static double GetLongitude(double degrees, double minutes, double seconds, string reference)
```

## Parameters

degrees [double](#)

minutes [double](#)

seconds [double](#)

reference [string](#)

E for positive longitudes, W for negative longitudes.

## Returns

[double](#)

The longitude in decimal degrees; otherwise NaN.



# Interface IClarityImage

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

Provides properties and methods to read and write image files.

```
public interface IClarityImage : IDisposable
```

## Inherited Members

[IDisposable.Dispose\(\)](#) 

## Properties

### BitDepth

Gets the number of bits allocated for each pixel.

```
int BitDepth { get; }
```

### Property Value

[int](#) 

### DpiX

The value, in dots per inch, for the horizontal resolution.

```
double DpiX { get; }
```

### Property Value

[double](#) 

### DpiY

The value, in dots per inch, for the vertical resolution.

```
double DpiY { get; }
```

## Property Value

[double](#)

## Height

Height of image in pixels

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

## Property Value

[int](#)

## Width

Width of image in pixels

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

## Property Value

[int](#)

## Methods

### GetValues()

Gets the intensity value of each pixel.

```
byte[] GetValues()
```

## Returns

[byte](#) []

## Thumbnail(int, int)

Resizes the image to the specified size. Unnecessary information may be removed.

```
void Thumbnail(int width, int height)
```

### Parameters

width [int](#)

height [int](#)

## Write(Stream, ImageFormat)

Write the image to a stream using the specified format.

```
void Write(Stream stream, ImageFormat format)
```

### Parameters

stream [Stream](#)

format [ImageFormat](#)

## Write(string)

Write the image to a file. The format will be determined the file extensions.

```
void Write(string file)
```

### Parameters

file [string](#)

## WriteValues(Stream)

Writes the intensity value for each pixel to a stream.

```
void WriteValues(Stream stream)
```

# Parameters

stream [Stream](#) 

# Interface IClarityImageFactory

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to create IClarityImage objects.

```
public interface IClarityImageFactory
```

## Methods

### Create(IFileReader, RangeInfo)

```
IClarityImage? Create(IFileReader fileReader, RangeInfo info)
```

#### Parameters

**fileReader** [IFileReader](#)

**info** [RangeInfo](#)

#### Returns

[IClarityImage](#)

### Create(ImageData<byte>)

```
IClarityImage? Create(ImageData<byte> data)
```

#### Parameters

**data** [ImageData](#)<[byte](#)>

#### Returns

[IClarityImage](#)

# Create(ImageData<ushort>)

```
IClarityImage? Create(ImageData<ushort> data)
```

## Parameters

**data** [ImageData<ushort>](#)

## Returns

[IClarityImage](#)

# Create(byte[], IntensityInfo)

```
IClarityImage? Create(byte[] data, IntensityInfo info)
```

## Parameters

**data** [byte\[\]](#)

**info** [IntensityInfo](#)

## Returns

[IClarityImage](#)

# Create(byte[], RangeInfo)

```
IClarityImage? Create(byte[] data, RangeInfo info)
```

## Parameters

**data** [byte\[\]](#)

**info** [RangeInfo](#)

## Returns

[IClarityImage](#)

# Interface IImageData

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public interface IImageData
```

## Properties

### ColumnLength

Number of pixels in the longitudinal direction.

```
int ColumnLength { get; }
```

#### Property Value

[int](#)

### ColumnResolution

Distance between two data columns in transverse direction in millimeters.

```
float ColumnResolution { get; }
```

#### Property Value

[float](#)

### RowResolution

Distance between two data rows in longitudinal direction in millimeters.

```
float RowResolution { get; }
```

#### Property Value

[float](#)

## RowWidth

Number of pixels in the transverse direction.

```
int RowWidth { get; }
```

## Property Value

[int](#)

## Methods

### GetColumnPosition(int)

Gets the transverse position of a column in millimeters.

```
float GetColumnPosition(int col)
```

## Parameters

col [int](#)

## Returns

[float](#)

### GetColumnPositions()

Gets the transverse position of each column in millimeters.

```
float[] GetColumnPositions()
```

## Returns

[float](#) []

Positions are from left to right.



# GetRowPosition(int)

Gets the longitudinal position of a row in millimeters.

```
float GetRowPosition(int row)
```

## Parameters

row [int](#)

## Returns

[float](#)

# GetRowPositions()

Gets the longitudinal position of each row in millimeters.

```
float[] GetRowPositions()
```

## Returns

[float](#) []

Positions are from bottom to top.

# Interface IImageDataFactory

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public interface IImageDataFactory
```

## Methods

### Create(IntensityInfo, byte[])

```
ImageData<byte> Create(IntensityInfo info, byte[] data)
```

#### Parameters

info [IntensityInfo](#)

data [byte](#) []

#### Returns

[ImageData](#)<[byte](#)>

### Create(RangeInfo, float[])

```
ImageData<float> Create(RangeInfo info, float[] data)
```

#### Parameters

info [RangeInfo](#)

data [float](#) []

#### Returns

[ImageData](#)<[float](#)>

# Create(RangeInfo, ushort[])

ImageData<ushort> Create(RangeInfo info, ushort[] data)

## Parameters

info [RangeInfo](#)

data [ushort](#)[]

## Returns

[ImageData](#)<[ushort](#)>

# Class ImageDataFactory

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public class ImageDataFactory : IImageDataFactory
```








## Inheritance

[object](#)  ← ImageDataFactory

## Implements

[IImageDataFactory](#)

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

# Methods

## Create(IntensityInfo, byte[])

```
public ImageData<byte> Create(IntensityInfo info, byte[] data)
```

## Parameters

info [IntensityInfo](#)

data [byte](#)  []

## Returns


[ImageData](#)  <[byte](#)  >

## Create(RangeInfo, float[])

```
public ImageData<float> Create(RangeInfo info, float[] data)
```

## Parameters

info [RangeInfo](#)

`data` [float](#)  []

Returns

[ImageData](#) <[float](#)  >

## Create(RangeInfo, ushort[])

```
public ImageData<ushort> Create(RangeInfo info, ushort[] data)
```

Parameters

`info` [RangeInfo](#)

`data` [ushort](#)  []

Returns

[ImageData](#) <[ushort](#)  >

# Class ImageData<T>

Namespace: [ProVAL.Clarity.Api](#)


Assembly: ProVAL.Clarity.Api.dll

```
public class ImageData<T> : IImageData where T : struct
```

## Type Parameters

T








### Inheritance

[object](#)  ← ImageData<T>

### Implements

[IImageData](#)

### Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Constructors

### ImageData()

```
public ImageData()
```

### ImageData(bool, int, float, int, float, T[])

```
public ImageData(bool isRowOrder, int rowWidth, float rowResolution, int columnLength, float columnResolution,  
T[] data)
```

## Parameters

isRowOrder [bool](#) 

rowWidth [int](#) 

rowResolution [float](#) 

columnLength [int](#) 

columnResolution [float](#)

data T[]

## Properties

### ColumnLength

Number of pixels in the longitudinal direction.

```
public int ColumnLength { get; }
```

#### Property Value

[int](#)

### ColumnResolution

Distance between two data columns in transverse direction in millimeters.

```
public float ColumnResolution { get; }
```

#### Property Value

[float](#)

### DataLength

```
public int DataLength { get; }
```

#### Property Value

[int](#)

### RowResolution

Distance between two data rows in longitudinal direction in millimeters.

```
public float RowResolution { get; }
```

Property Value

[float](#)

## RowWidth

Number of pixels in the transverse direction.

```
public int RowWidth { get; }
```

Property Value

[int](#)

## Methods

### CopyColumnValues(int, Stream)

```
public void CopyColumnValues(int col, Stream stream)
```

Parameters

col [int](#)

stream [Stream](#)

### CopyRowValues(int, Stream)

```
public void CopyRowValues(int row, Stream stream)
```

Parameters

row [int](#)

stream [Stream](#)

### GetColumnBasedValues()



```
public T[] GetColumnBasedValues()
```

Returns

T[]

## GetColumnPosition(int)

Gets the transverse position of a column in millimeters.

```
public float GetColumnPosition(int col)
```

Parameters

col [int](#)

Returns

[float](#)

## GetColumnPositions()

Gets the transverse position of each column in millimeters.

```
public float[] GetColumnPositions()
```

Returns

[float](#) []

Positions are from left to right.

## GetColumnValues(int)

```
public T[] GetColumnValues(int col)
```

Parameters

col [int](#)

Returns

T[]

## GetRowBasedValues()

```
public T[] GetRowBasedValues()
```

Returns

T[]

## GetRowPosition(int)

Gets the longitudinal position of a row in millimeters.

```
public float GetRowPosition(int row)
```

Parameters

row [int](#)

Returns

[float](#)

## GetRowPositions()

Gets the longitudinal position of each row in millimeters.

```
public float[] GetRowPositions()
```

Returns

[float](#) []

Positions are from bottom to top.

## GetRowValues(int)

```
public T[] GetRowValues(int row)
```

## Parameters

row [int](#)

## Returns

T[]

## ReadColumn(int, Span<T>)

```
public void ReadColumn(int column, Span<T> buffer)
```

## Parameters

column [int](#)

buffer [Span](#)<T>

## Exceptions

[ArgumentOutOfRangeException](#)

## ReadColumn(int, T[], int)

```
public void ReadColumn(int column, T[] buffer, int offset)
```

## Parameters

column [int](#)

buffer T[]

offset [int](#)

## Exceptions

[ArgumentOutOfRangeException](#)

# ReadRow(int, Span<T>)

```
public void ReadRow(int row, Span<T> buffer)
```

## Parameters

row [int](#)

buffer [Span](#) <T>

## Exceptions

[ArgumentOutOfRangeException](#)

# ReadRow(int, T[], int)

```
public void ReadRow(int row, T[] buffer, int offset)
```

## Parameters

row [int](#)

buffer T[]

offset [int](#)

## Exceptions

[ArgumentOutOfRangeException](#)

# Enum ImageFormat

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum ImageFormat
```

## Fields

Bitmap = 1

Jpeg2000 = 4

Jpg = 3

None = 0

Png = 2

Raw = 5


# Class IntensityInfo

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class IntensityInfo
```

## Inheritance

[object](#)  ← IntensityInfo

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Properties

### Codec2d

Identifies codec for 2D image. "BIN-uncompressed" should be used if there is no compression. Required field if 2D data size is greater than 0.

```
public Codec2d Codec2d { get; set; }
```

### Property Value

[Codec2d](#)

### CompressionQuality2d

Compression quality level (PSNR) for lossy compression. When lossless compression is used, this field should be set to 0.

```
public float CompressionQuality2d { get; set; }
```

### Property Value

[float](#) 

### DataBitDepth2d

Bit depth for each data point in 2D image. Required field if 2D data size is greater than 0.

```
public DataBitDepth2d DataBitDepth2d { get; set; }
```

## Property Value

[DataBitDepth2d](#)

## DataSize2d

Total size of the 2D data, in bytes; if compressed, the size of the compressed data. Zero if no 2D data is stored.

```
public uint DataSize2d { get; set; }
```

## Property Value

[uint](#)

## InvalidPixelValue2d

The data value signals invalid pixel for an 8-bit image.

```
public byte InvalidPixelValue2d { get; set; }
```

## Property Value

[byte](#)

## Length2d

Number of pixels in the longitudinal direction. Required field if 2D data size is greater than 0.

```
public uint Length2d { get; set; }
```

## Property Value

[uint](#)

## LongitudinalResolution2d

Distance between two data rows in longitudinal direction in millimeters. Required field if 2D data size is greater than 0.

```
public float LongitudinalResolution2d { get; set; }
```

### Property Value

[float](#)

## PixelStorage2d

Valid only with BIN-uncompressed codecs.

```
public PixelStorage2d PixelStorage2d { get; set; }
```

### Property Value

[PixelStorage2d](#)

## TransverseResolution2d

Distance between two data columns in transverse direction in millimeters. Required field if 2D data size is greater than 0.

```
public float TransverseResolution2d { get; set; }
```

### Property Value

[float](#)

## Width2d

Number of pixels in the transverse direction. Required field if 2D data size is greater than 0.

```
public uint Width2d { get; set; }
```

### Property Value

[uint](#)



# Class Metadata

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public abstract class Metadata
```








## Inheritance

[object](#)  ← Metadata

## Derived

[MetadataFloat32](#), [MetadataFloat32Array](#), [MetadataFloat64](#), [MetadataFloat64Array](#), [MetadataInt32](#), [MetadataInt32Array](#), [MetadataInt64](#), [MetadataInt64Array](#), [MetadataString](#), [MetadataStringArray](#), [MetadataUInt32](#), [MetadataUInt32Array](#), [MetadataUInt8](#), [MetadataUInt8Array](#)

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

# Properties

## Name

```
public string Name { get; set; }
```

## Property Value

[string](#) 

# Enum MetadataDataType

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum MetadataDataType
```

## Fields

```
Float32 = 4
```

```
Float64 = 6
```

```
Int32 = 3
```

```
Int64 = 5
```

```
String = 0
```

```
UInt32 = 2
```

```
UInt8 = 1
```

# Class MetadataFactory

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataFactory
```

## Inheritance

[object](#)  ← MetadataFactory

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Methods

### CreateItem(MetadataDataType, bool)

```
public static Metadata? CreateItem(MetadataDataType value, bool isArray)
```

## Parameters

value [MetadataDataType](#)

isArray [bool](#) 

## Returns

[Metadata](#)

# Class MetadataFloat32

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataFloat32 : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataFloat32

## Inherited Members

[Metadata.Name](#), [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Properties

### Value

```
public float Value { get; set; }
```

### Property Value

[float](#) 

# Class MetadataFloat32Array

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataFloat32Array : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataFloat32Array

## Inherited Members

[Metadata.Name](#), [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Properties

### Values

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

### Property Value

[float](#)  []

# Class MetadataFloat64

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataFloat64 : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataFloat64

## Inherited Members

[Metadata.Name](#) , [object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Properties

### Value

```
public double Value { get; set; }
```

### Property Value

[double](#) 

# Class MetadataFloat64Array

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataFloat64Array : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataFloat64Array

## Inherited Members

[Metadata.Name](#), [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Properties

### Values

```
public double[] Values { get; set; }
```

### Property Value

[double](#)  []

# Class MetadataInt32

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataInt32 : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataInt32

## Inherited Members

[Metadata.Name](#) , [object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Properties

### Value

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

### Property Value

[int](#) 



# Class MetadataInt32Array

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataInt32Array : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataInt32Array

## Inherited Members

[Metadata.Name](#) , [object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Properties

### Values

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

### Property Value

[int](#)  []

# Class MetadataInt64

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataInt64 : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataInt64

## Inherited Members

[Metadata.Name](#), [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Properties

### Value

```
public long Value { get; set; }
```

### Property Value

[long](#) 

# Class MetadataInt64Array

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataInt64Array : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataInt64Array

## Inherited Members

[Metadata.Name](#) , [object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Properties

### Values

```
public long[] Values { get; set; }
```

### Property Value

[long](#)  []

# Class MetadataString

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataString : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataString

## Inherited Members

[Metadata.Name](#) , [object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Properties

### Value

```
public string Value { get; set; }
```

### Property Value

[string](#) 

# Class MetadataStringArray

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataStringArray : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataStringArray

## Inherited Members

[Metadata.Name](#) , [object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Properties

### Values

```
public string[] Values { get; set; }
```

### Property Value

[string](#)  []

# Class MetadataUInt32

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataUInt32 : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataUInt32

## Inherited Members

[Metadata.Name](#), [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Properties

### Value

```
public uint Value { get; set; }
```

### Property Value

[uint](#) 

# Class MetadataUInt32Array

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataUInt32Array : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataUInt32Array

## Inherited Members

[Metadata.Name](#) , [object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Properties

## Values

```
public uint[] Values { get; set; }
```

## Property Value

[uint](#)  []

# Class MetadataUInt8

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataUInt8 : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataUInt8

## Inherited Members

[Metadata.Name](#), [object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Properties

### Value

```
public byte Value { get; set; }
```

### Property Value

[byte](#) 



# Class MetadataUInt8Array

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class MetadataUInt8Array : Metadata
```

## Inheritance

[object](#)  ← [Metadata](#) ← MetadataUInt8Array

## Inherited Members

[Metadata.Name](#) , [object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Properties

### Values

```
public byte[] Values { get; set; }
```

### Property Value

[byte](#)  []

# Class PavementImageInfo

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class PavementImageInfo
```

## Inheritance

[object](#)  ← PavementImageInfo

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Constructors

### PavementImageInfo()

```
public PavementImageInfo()
```

## Properties

### CollectionTimestamp

Date and time when data was collected.

```
public DateTimeOffset CollectionTimestamp { get; set; }
```

### Property Value

[DateTimeOffset](#) 

### ContractorName

Contractor identification.

```
public string ContractorName { get; set; }
```

## Property Value

[string](#)

## CreationTimestamp

Date and time when file was created.

```
public DateTimeOffset CreationTimestamp { get; set; }
```

## Property Value

[DateTimeOffset](#)

## DmiReading

Estimated distance traveled from the starting point of the data collection to the reference point in each image file. Use meter as unit to 0.001 m.

```
public float DmiReading { get; set; }
```

## Property Value

[float](#)

## FileName

Name of the file, including the extension.

```
public string FileName { get; set; }
```

## Property Value

[string](#)

## FileSerialNumber

File serial number in continuous data collection.

```
public uint FileSerialNumber { get; set; }
```

## Property Value

[uint](#)

## FileVersion

Version number of the file format. The format is X.YY where X is the major version numbered from 1 to 9 and YY is a minor version numbered from 00 to 99.

```
public string FileVersion { get; set; }
```

## Property Value

[string](#)

## GpsLatitude

GPS latitude of the reference point. Required field.

```
public double GpsLatitude { get; set; }
```

## Property Value

[double](#)

## GpsLongitude

GPS longitude of the reference point. Required field.

```
public double GpsLongitude { get; set; }
```

## Property Value

[double](#)

## Heading

Direction of travel degrees from North

```
public float Heading { get; set; }
```

Property Value

[float](#)

## ImportTimestamp

Date and time when file was imported.

```
public DateTimeOffset ImportTimestamp { get; set; }
```

Property Value

[DateTimeOffset](#)

## IntensityHeaders

Headers related to intensity data.

```
public IntensityInfo IntensityHeaders { get; }
```

Property Value

[IntensityInfo](#)

## LaneIndex

Beginning at 1 for the leftmost lane in the driving direction and increasing by 1 for each lane to the right.

```
public byte LaneIndex { get; set; }
```

Property Value

[byte](#)

# MetadataDataSize

Size in bytes of the metadata.

```
public uint MetadataDataSize { get; set; }
```

## Property Value

[uint](#)

# OperatorName

Operator identification.

```
public string OperatorName { get; set; }
```

## Property Value

[string](#)

# RangeHeaders

Headers related to range data.

```
public RangeInfo RangeHeaders { get; }
```

## Property Value

[RangeInfo](#)

# ReservedItem

255-byte string. Reserved for future use or additional vendor-specific information. Unused bytes should be padded with nulls.

```
public string ReservedItem { get; set; }
```

## Property Value

[string](#)

# RouteName

Name of the highway

```
public string RouteName { get; set; }
```

## Property Value

[string](#)

# SensorSystem

2D/3D sensor system identification.

```
public string SensorSystem { get; set; }
```

## Property Value

[string](#)

# SoftwareVersion

Identifier of the software that produced the file. The major version of the software shall be included as well, for example "PaveSys2."

```
public string SoftwareVersion { get; set; }
```

## Property Value

[string](#)

# Speed

Average vehicle speed, in meters per second, associated with the image.

```
public float Speed { get; set; }
```

## Property Value

[float](#)

# StateName

FIPS state code

```
public string StateName { get; set; }
```

## Property Value

[string](#) 

# VehicleName

Vehicle identification.

```
public string VehicleName { get; set; }
```

## Property Value

[string](#) 



# Class PavementSurface

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll








Contains all data extracted from a file.

```
public class PavementSurface
```

## Inheritance

[object](#)  ← PavementSurface

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Constructors

PavementSurface(string, ImageData<byte>, ImageData<ushort>, ImageData<float>, PavementImageInfo, Collection<Metadata>, ReadOnlyCollection<string>)

```
public PavementSurface(string file, ImageData<byte> intensityData, ImageData<ushort> rangeUnregisteredData, ImageData<float> rangeRegisteredData, PavementImageInfo info, Collection<Metadata> metadata, ReadOnlyCollection<string> validation)
```

## Parameters

file [string](#) 

intensityData [ImageData](#)  <[byte](#)  >

rangeUnregisteredData [ImageData](#)  <[ushort](#)  >

rangeRegisteredData [ImageData](#)  <[float](#)  >

info [PavementImageInfo](#)

metadata [Collection](#)  <[Metadata](#) >

validation [ReadOnlyCollection](#)  <[string](#)  >

# Properties

## FilePath

```
public string FilePath { get; }
```

## Property Value

[string](#) 

## Info

```
public PavementImageInfo Info { get; init; }
```

## Property Value

[PavementImageInfo](#)

## IntensityData

```
public ImageData<byte> IntensityData { get; init; }
```

## Property Value

[ImageData<byte](#)  >

## Metadata

```
public Collection<Metadata> Metadata { get; init; }
```

## Property Value

[Collection](#)  <[Metadata](#)>

## RangeRegisteredData

```
public ImageData<float> RangeRegisteredData { get; init; }
```

Property Value

[ImageData](#) <[float](#)>

## RangeUnregisteredData

```
public ImageData<ushort> RangeUnregisteredData { get; init; }
```

Property Value

[ImageData](#) <[ushort](#)>

## ValidationMessages

```
public ReadOnlyCollection<string> ValidationMessages { get; init; }
```

Property Value

[ReadOnlyCollection](#) <[string](#)>

# Class PavementSurfaceBuilder


Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll








Creates a PavementSurface object.

```
public class PavementSurfaceBuilder
```

## Inheritance

[object](#)  ← PavementSurfaceBuilder

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Constructors

### PavementSurfaceBuilder(IFileReaderFactory, IImageReaderFactory, ImageDataFactory)

```
public PavementSurfaceBuilder(IFileReaderFactory fileReaderFactory, IImageReaderFactory imageReaderFactory, ImageDataFactory imageDataFactory)
```

## Parameters

fileReaderFactory [IFileReaderFactory](#)

imageReaderFactory [IImageReaderFactory](#)

imageDataFactory [ImageDataFactory](#)

## Methods

### Create(string)

```
public PavementSurface? Create(string file)
```

## Parameters

file [string](#) 

Returns

[PavementSurface](#)

# Enum PixelStorage2d

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum PixelStorage2d : byte
```

## Fields

Column = 2

Row = 1

Undefined = 0

# Enum PixelStorage3d

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum PixelStorage3d : byte
```

## Fields

Column = 2

Row = 1

Undefined = 0

# Class PsiDataValidator

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll








Validates the header data from a PSI file.

```
public class PsiDataValidator
```

## Inheritance

[object](#)  ← PsiDataValidator

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Methods

### Validate(PavementImageInfo, ICollection<string>?)

Calls all other validation methods in this class.

```
public static bool Validate(PavementImageInfo data, ICollection<string>? messages)
```

## Parameters

**data** [PavementImageInfo](#)

Data to validate.

**messages** [ICollection](#)  <[string](#)  >

Validation messages will be added to this collection.

## Returns

[bool](#) 

Returns [true](#)  if all data passes validation; otherwise, false.

### ValidateBaseline3d(float, ICollection<string>?)



```
public static bool ValidateBaseline3d(float value, ICollection<string>? messages)
```

## Parameters

value [float](#)

messages [ICollection](#) <[string](#)>

## Returns

[bool](#)

## ValidateCodec2d(Codec2d, ICollection<string>?)

```
public static bool ValidateCodec2d(Codec2d value, ICollection<string>? messages)
```

## Parameters

value [Codec2d](#)

messages [ICollection](#) <[string](#)>

## Returns

[bool](#)

## ValidateCodec3d(Codec3d, ICollection<string>?)

```
public static bool ValidateCodec3d(Codec3d value, ICollection<string>? messages)
```

## Parameters

value [Codec3d](#)

messages [ICollection](#) <[string](#)>

## Returns

[bool](#)

## ValidateCollectionTimestamp(DateTimeOffset, ICollection<string>?)

```
public static bool ValidateCollectionTimestamp(DateTimeOffset value, ICollection<string>? messages)
```

### Parameters

value [DateTimeOffset](#)

messages [ICollection](#) <[string](#)>

### Returns

[bool](#)

## ValidateDataBitDepth2d(DataBitDepth2d, ICollection<string>?)

```
public static bool ValidateDataBitDepth2d(DataBitDepth2d value, ICollection<string>? messages)
```

### Parameters

value [DataBitDepth2d](#)

messages [ICollection](#) <[string](#)>

### Returns

[bool](#)

## ValidateDataBitDepth3d(DataBitDepth3d, ICollection<string>?)

```
public static bool ValidateDataBitDepth3d(DataBitDepth3d value, ICollection<string>? messages)
```

### Parameters

value [DataBitDepth3d](#)

messages [ICollection](#) <[string](#)>

### Returns

[bool](#)

## ValidateFileVersion(string, ICollection<string>?)

```
public static bool ValidateFileVersion(string input, ICollection<string>? messages)
```

### Parameters

input [string](#)

messages [ICollection](#) <[string](#)>

### Returns

[bool](#)

## ValidateGpsLatitude(double, ICollection<string>?)

```
public static bool ValidateGpsLatitude(double input, ICollection<string>? messages)
```

### Parameters

input [double](#)

messages [ICollection](#) <[string](#)>

### Returns

[bool](#)

## ValidateGpsLongitude(double, ICollection<string>?)

```
public static bool ValidateGpsLongitude(double input, ICollection<string>? messages)
```

### Parameters

input [double](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidateHeading(float, ICollection<string>?)

```
public static bool ValidateHeading(float input, ICollection<string>? messages)
```

Parameters

input [float](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidateLaneIndex(byte, ICollection<string>?)

```
public static bool ValidateLaneIndex(byte input, ICollection<string>? messages)
```

Parameters

input [byte](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidateLength2d(uint, ICollection<string>?)

```
public static bool ValidateLength2d(uint value, ICollection<string>? messages)
```

Parameters

value [uint](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidateLength3d(uint, ICollection<string>?)

```
public static bool ValidateLength3d(uint value, ICollection<string>? messages)
```

Parameters

value [uint](#)

messages [ICollection](#) <[string](#)> >

Returns

[bool](#)

## ValidateLongitudinalResolution2d(float, ICollection<string>?)

```
public static bool ValidateLongitudinalResolution2d(float value, ICollection<string>? messages)
```

Parameters

value [float](#)

messages [ICollection](#) <[string](#)> >

Returns

[bool](#)

## ValidateLongitudinalResolution3d(float, ICollection<string>?)

```
public static bool ValidateLongitudinalResolution3d(float value, ICollection<string>? messages)
```

Parameters

value [float](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidatePixelStorage2d(PixelStorage2d, ICollection<string>?)

```
public static bool ValidatePixelStorage2d(PixelStorage2d value, ICollection<string>? messages)
```

Parameters

value [PixelStorage2d](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidatePixelStorage3d(PixelStorage3d, ICollection<string>?)

```
public static bool ValidatePixelStorage3d(PixelStorage3d value, ICollection<string>? messages)
```

Parameters

value [PixelStorage3d](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidateStateFipsCode(string, ICollection<string>?)

```
public static bool ValidateStateFipsCode(string value, ICollection<string>? messages)
```

Parameters

value [string](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidateTimestamp(DateTimeOffset, ICollection<string>?)

```
public static bool ValidateTimestamp(DateTimeOffset value, ICollection<string>? messages)
```

Parameters

value [DateTimeOffset](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidateTransverseResolution2d(float, ICollection<string>?)

```
public static bool ValidateTransverseResolution2d(float value, ICollection<string>? messages)
```

Parameters

value [float](#)

messages [ICollection](#) <[string](#)>

Returns

[bool](#)

## ValidateTransverseResolution3d(float, ICollection<string>?)

```
public static bool ValidateTransverseResolution3d(float value, ICollection<string>? messages)
```

## Parameters

value [float](#)

messages [ICollection](#) <[string](#)>

## Returns

[bool](#)

## ValidateVerticalResolution3d(float, ICollection<string>?)

```
public static bool ValidateVerticalResolution3d(float value, ICollection<string>? messages)
```

## Parameters

value [float](#)

messages [ICollection](#) <[string](#)>

## Returns

[bool](#)

## ValidateWidth2d(uint, ICollection<string>?)

```
public static bool ValidateWidth2d(uint value, ICollection<string>? messages)
```

## Parameters

value [uint](#)

messages [ICollection](#) <[string](#)>

## Returns

[bool](#)

## ValidateWidth3d(uint, ICollection<string>?)

```
public static bool ValidateWidth3d(uint value, ICollection<string>? messages)
```



## Parameters

value [uint](#)

messages [ICollection](#) <[string](#)>

## Returns

[bool](#)

# Class PsiParser

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public static class PsiParser
```

## Inheritance

[object](#)  ← PsiParser

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Methods

### GetPrintableString(ReadOnlySpan<byte>)

Gets the first block of ASCII printable characters, 32-126.

```
public static string GetPrintableString(ReadOnlySpan<byte> input)
```

## Parameters

**input** [ReadOnlySpan](#)  <[byte](#)  >

## Returns

[string](#) 

Returns the found string or an empty string if no printable characters were found.

## Remarks

The method will return when the first non-printable character is found or the end of the span is reached.

### ParseHeader(PavementImageInfo, ReadOnlySpan<byte>)

```
public static void ParseHeader(PavementImageInfo target, ReadOnlySpan<byte> input)
```

## Parameters

**target** [PavementImageInfo](#)

**input** [ReadOnlySpan](#) [<byte>](#) >

## ParseTimestamp(ReadOnlySpan<byte>, string)

Converts the representation of a date and time in a span to its DateTimeOffset equivalent using the specified format and the Invariant culture. The format of the date and time representation must match the specified format exactly.

```
public static DateTimeOffset ParseTimestamp(ReadOnlySpan<byte> input, string format)
```

## Parameters

**input** [ReadOnlySpan](#) [<byte>](#) >

A span containing the characters that represent a date and time to convert.

**format** [string](#)

A format specifier that defines the required format of input.

## Returns

[DateTimeOffset](#)

The DateTimeOffset equivalent to the date and time of input, if the conversion succeeded, or DateTimeOffset.MinValue, if the conversion failed.

## ReadMetadataArray(BinaryReader, Metadata, int, int)

```
public static void ReadMetadataArray(BinaryReader reader, Metadata target, int byteLength, int arrayLength)
```

## Parameters

**reader** [BinaryReader](#)

**target** [Metadata](#)

**byteLength** [int](#)

**arrayLength** [int](#)

# ReadMetadataScalar(BinaryReader, Metadata, int)

```
public static void ReadMetadataScalar(BinaryReader reader, Metadata target, int byteLength)
```

## Parameters

reader [BinaryReader](#) 

target [Metadata](#)

byteLength [int](#) 


# Class PsiStructureValidator

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class PsiStructureValidator
```

## Inheritance

[object](#)  ← PsiStructureValidator

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Methods

### Validate(PsiFileReader, ICollection<string>?)

Calls all other validation methods in this class.

```
public static bool Validate(PsiFileReader source, ICollection<string>? messages)
```

## Parameters

source [PsiFileReader](#)

messages [ICollection](#)  <[string](#)  >

## Returns

[bool](#) 

### ValidateSignature(ReadOnlySpan<char>, ICollection<string>?)

Checks that the first 3 characters of the read-only span are 'psi'. The comparison is case-sensitive.

```
public static bool ValidateSignature(ReadOnlySpan<char> value, ICollection<string>? messages)
```

## Parameters

value [ReadOnlySpan](#) <[char](#)>

messages [ICollection](#) <[string](#)>

## Returns

[bool](#)

# ValidateSize(long, uint, uint, uint, ICollection<string>?)

Verify that `lengthFile` matches the expected value.

```
public static bool ValidateSize(long lengthFile, uint length2d, uint length3d, uint metadataLength,
    ICollection<string>? messages)
```

## Parameters

lengthFile [long](#)

length2d [uint](#)

length3d [uint](#)

metadataLength [uint](#)

messages [ICollection](#) <[string](#)>

Validation messages will be added to this collection.

## Returns

[bool](#)

Returns [true](#) if all data passes validation; otherwise, false.

# ValidateTrailer(ReadOnlySpan<char>, ICollection<string>?)

Checks that the last 4 bytes of the read-only span are '@@@@'.

```
public static bool ValidateTrailer(ReadOnlySpan<char> value, ICollection<string>? messages)
```

## Parameters

value [ReadOnlySpan](#) <[char](#)>

messages [ICollection](#) <[string](#)>

# Returns

[bool](#) 

# Class RangeConversionHelpers

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class RangeConversionHelpers
```

## Inheritance

[object](#)  ← RangeConversionHelpers

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Methods


### ToRegistered(ushort[], ushort, float, float)

Creates registered data from unregistered data.

```
public static float[] ToRegistered(ushort[] unregistered, ushort invalidValue, float baseline, float interval)
```


## Parameters

unregistered [ushort](#)  []

invalidValue [ushort](#) 

This value will be replaced by NaN in the registered data.

baseline [float](#) 

interval [float](#) 

## Returns

[float](#)  []

### ToUnregistered(float[])

Creates unregistered data from registered data.



```
public static ushort[] ToUnregistered(float[] registered)
```

## Parameters

registered [float](#)[]

## Returns

[ushort](#)[]

## Remarks

Registered values of [NaN](#) will be represented by [MaxValue](#)

## ToUnregistered(float[], ushort)

Creates unregistered data from registered data.

```
[Obsolete("This method will be removed in the future. Use ToUnregistered(float[]) instead. Allowing any value to be specified for 'nanReplacement' can cause data loss.")]
```

```
public static ushort[] ToUnregistered(float[] registered, ushort nanReplacement)
```

## Parameters

registered [float](#)[]

nanReplacement [ushort](#)

Value to use in unregistered data if NaN is present in registered data.

## Returns

[ushort](#)[]

# Class RangeInfo

Namespace: [ProVAL.Clarity.Api](#)








Assembly: ProVAL.Clarity.Api.dll

```
public class RangeInfo
```

## Inheritance

[object](#)  ← RangeInfo

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

# Properties

## BaselineRangeValue

Baseline range value is the lowest range value (in millimeter) in an 3D image.

```
public float BaselineRangeValue { get; set; }
```

## Property Value

[float](#) 

## Codec3d

Valid only with BIN codecs.

```
public Codec3d Codec3d { get; set; }
```

## Property Value

[Codec3d](#)

## CompressionQuality3d

Compression quality level (PSNR). When lossless compression is used, this field should be set to 0.

```
public float CompressionQuality3d { get; set; }
```

Property Value

[float](#)

## DataBitDepth3d

The bit depth for each data point in the 3D image. Required field if 3D data size is greater than 0.

```
public DataBitDepth3d DataBitDepth3d { get; set; }
```

Property Value

[DataBitDepth3d](#)

## DataSize3d

The total size of the 3D data in bytes; if compressed, the size of the compressed data. Zero if no 3D data is stored.

```
public uint DataSize3d { get; set; }
```

Property Value

[uint](#)

## InvalidPixelValue3d

The data value signals invalid pixel for a 16-bit image.

```
public ushort InvalidPixelValue3d { get; set; }
```

Property Value

[ushort](#)

# Length3d

Number of pixels in the longitudinal direction. Required field if 3D data size is greater than 0.

```
public uint Length3d { get; set; }
```

## Property Value

[uint](#)

# LongitudinalResolution3d

DMI-reported distance between two data rows in the longitudinal direction, in millimeters. Required field if 3D data size is greater than 0.

```
public float LongitudinalResolution3d { get; set; }
```

## Property Value

[float](#)

# PixelStorage3d

Valid only with BIN codecs.

```
public PixelStorage3d PixelStorage3d { get; set; }
```

## Property Value

[PixelStorage3d](#)

# Registration3d

Whether or not the range data is registered.

```
public Registration3d Registration3d { get; set; }
```

## Property Value

[Registration3d](#)

## TransverseResolution3d

Distance between two data columns in the transverse direction, in millimeters. Required field if 3D data size is greater than 0.

```
public float TransverseResolution3d { get; set; }
```

### Property Value

[float](#)

## VerticalResolution3d

The distance represented by unit change of the range data value, in millimeters. Required field if 3D data size is greater than 0.

```
public float VerticalResolution3d { get; set; }
```

### Property Value

[float](#)

## Width3d

Number of pixels in the transverse direction. Required field if 3D data size is greater than 0.

```
public uint Width3d { get; set; }
```

### Property Value

[uint](#)

# Enum Registration3d

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum Registration3d : byte
```

## Fields

```
Registered = 1
```

```
Undefined = 0
```

```
Unregistered = 2
```

# Class Resources

Namespace: [ProVAL.Clarity.Api](#)

Assembly: ProVAL.Clarity.Api.dll








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

```
public class Resources
```

## Inheritance

[object](#)  ← Resources

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

# Properties

## ContractorName

Looks up a localized string similar to Contractor Name.

```
public static string ContractorName { get; }
```

## Property Value

[string](#) 

## Contrast

Looks up a localized string similar to Contrast.

```
public static string Contrast { get; }
```

## Property Value

[string](#) 

# Culture

Overrides the current thread's `CurrentUICulture` property for all resource lookups using this strongly typed resource class.

```
public static CultureInfo Culture { get; set; }
```

## Property Value

[CultureInfo](#) 

# DateCollected

Looks up a localized string similar to Date Collected.

```
public static string DateCollected { get; }
```

## Property Value

[string](#) 

# DmiReading

Looks up a localized string similar to DMI Reading.

```
public static string DmiReading { get; }
```

## Property Value

[string](#) 

# FileSerialNumber

Looks up a localized string similar to File Serial Number.

```
public static string FileSerialNumber { get; }
```

## Property Value

[string](#) 



# Heading

Looks up a localized string similar to Heading (°).

```
public static string Heading { get; }
```

## Property Value

[string](#) 

# IntensityCodec

Looks up a localized string similar to 2D Codec.

```
public static string IntensityCodec { get; }
```

## Property Value

[string](#) 

# IntensityCompressionQuality

Looks up a localized string similar to 2D Compression Quality.

```
public static string IntensityCompressionQuality { get; }
```

## Property Value

[string](#) 

# IntensityDataBitDepth

Looks up a localized string similar to 2D Data Bit Depth.

```
public static string IntensityDataBitDepth { get; }
```

## Property Value

[string](#) 

# IntensityDataSize

Looks up a localized string similar to 2D Data Size.

```
public static string IntensityDataSize { get; }
```

## Property Value

[string](#) 

# IntensityInvalidPixelValue

Looks up a localized string similar to 2D Invalid Pixel Value.

```
public static string IntensityInvalidPixelValue { get; }
```

## Property Value

[string](#) 

# IntensityLength

Looks up a localized string similar to 2D Length.

```
public static string IntensityLength { get; }
```

## Property Value

[string](#) 

# IntensityLongitudinalResolution

Looks up a localized string similar to 2D Longitudinal Resolution.

```
public static string IntensityLongitudinalResolution { get; }
```

## Property Value

[string](#) 

# IntensityPixelStorageOrder

Looks up a localized string similar to 2D Pixel Storage Order.

```
public static string IntensityPixelStorageOrder { get; }
```

## Property Value

[string](#) 

# IntensityTransverseResolution

Looks up a localized string similar to 2D Transverse Resolution.

```
public static string IntensityTransverseResolution { get; }
```

## Property Value

[string](#) 

# IntensityWidth

Looks up a localized string similar to 2D Width.

```
public static string IntensityWidth { get; }
```

## Property Value

[string](#) 

# InvalidBaselineRangeValue

Looks up a localized string similar to Invalid 3D baseline value.

```
public static string InvalidBaselineRangeValue { get; }
```

## Property Value

[string](#) 

# InvalidCodec2d

Looks up a localized string similar to Invalid 2D codec.

```
public static string InvalidCodec2d { get; }
```

## Property Value

[string](#)

# InvalidCodec3d

Looks up a localized string similar to Invalid 3D codec.

```
public static string InvalidCodec3d { get; }
```

## Property Value

[string](#)

# InvalidCollectionTimestamp

Looks up a localized string similar to Invalid collection timestamp..

```
public static string InvalidCollectionTimestamp { get; }
```

## Property Value

[string](#)

# InvalidDataBitDepth2d

Looks up a localized string similar to Invalid 2D data bit depth.

```
public static string InvalidDataBitDepth2d { get; }
```

## Property Value

[string](#)

# InvalidDataBitDepth3d

Looks up a localized string similar to Invalid 3D data bit depth.

```
public static string InvalidDataBitDepth3d { get; }
```

## Property Value

[string](#) 

# InvalidFileSize

Looks up a localized string similar to File size is {0:n0}. Expected {1:n0}..

```
public static string InvalidFileSize { get; }
```

## Property Value

[string](#) 

# InvalidFileVersion

Looks up a localized string similar to Invalid file version.

```
public static string InvalidFileVersion { get; }
```

## Property Value

[string](#) 

# InvalidHeading

Looks up a localized string similar to Invalid heading.

```
public static string InvalidHeading { get; }
```

## Property Value

[string](#) 

# InvalidLaneIndex

Looks up a localized string similar to Invalid lane index.

```
public static string InvalidLaneIndex { get; }
```

## Property Value

[string](#) 

# InvalidLatitude

Looks up a localized string similar to Invalid latitude.

```
public static string InvalidLatitude { get; }
```

## Property Value

[string](#) 

# InvalidLength2d

Looks up a localized string similar to Invalid 2D length.

```
public static string InvalidLength2d { get; }
```

## Property Value

[string](#) 

# InvalidLength3d

Looks up a localized string similar to Invalid 3D length.

```
public static string InvalidLength3d { get; }
```

## Property Value

[string](#) 

# InvalidLongitude

Looks up a localized string similar to Invalid longitude.

```
public static string InvalidLongitude { get; }
```

## Property Value

[string](#) 

# InvalidLongitudinalResolution2d

Looks up a localized string similar to Invalid 2D longitudinal resolution.

```
public static string InvalidLongitudinalResolution2d { get; }
```

## Property Value

[string](#) 

# InvalidLongitudinalResolution3d

Looks up a localized string similar to Invalid 3D longitudinal resolution.

```
public static string InvalidLongitudinalResolution3d { get; }
```

## Property Value

[string](#) 

# InvalidPixelStorage2d

Looks up a localized string similar to Invalid 2D pixel storage order.

```
public static string InvalidPixelStorage2d { get; }
```

## Property Value

[string](#) 

# InvalidPixelStorage3d

Looks up a localized string similar to Invalid 3D pixel storage order.

```
public static string InvalidPixelStorage3d { get; }
```

Property Value

[string](#) 

# InvalidRegistration3d

Looks up a localized string similar to Invalid 3D registration.

```
public static string InvalidRegistration3d { get; }
```

Property Value

[string](#) 

# InvalidSignature

Looks up a localized string similar to Invalid signature..

```
public static string InvalidSignature { get; }
```

Property Value

[string](#) 

# InvalidStateCode

Looks up a localized string similar to Invalid state FIPS code.

```
public static string InvalidStateCode { get; }
```

Property Value

[string](#) 



# InvalidTimestamp

Looks up a localized string similar to Invalid timestamp..

```
public static string InvalidTimestamp { get; }
```

## Property Value

[string](#)

# InvalidTrailer

Looks up a localized string similar to Invalid trailer..

```
public static string InvalidTrailer { get; }
```

## Property Value

[string](#)

# InvalidTransverseResolution2d

Looks up a localized string similar to Invalid 2D transverse resolution.

```
public static string InvalidTransverseResolution2d { get; }
```

## Property Value

[string](#)

# InvalidTransverseResolution3d

Looks up a localized string similar to Invalid 3D transverse resolution.

```
public static string InvalidTransverseResolution3d { get; }
```

## Property Value

[string](#)

# InvalidVerticalResolution3d

Looks up a localized string similar to Invalid 3D vertical resolution.

```
public static string InvalidVerticalResolution3d { get; }
```

## Property Value

[string](#)

# InvalidWidth2d

Looks up a localized string similar to Invalid 2D width.

```
public static string InvalidWidth2d { get; }
```

## Property Value

[string](#)

# InvalidWidth3d

Looks up a localized string similar to Invalid 3D width.

```
public static string InvalidWidth3d { get; }
```

## Property Value

[string](#)

# LaneIndex

Looks up a localized string similar to Lane Index.

```
public static string LaneIndex { get; }
```

## Property Value

[string](#)

# Latitude

Looks up a localized string similar to Latitude (°).

```
public static string Latitude { get; }
```

# Property Value

[string](#) 

# Longitude

Looks up a localized string similar to Longitude (°).

```
public static string Longitude { get; }
```

# Property Value

[string](#) 

# MetadataSize

Looks up a localized string similar to Metadata Data Size.

```
public static string MetadataSize { get; }
```

# Property Value

[string](#) 

# OperatorName

Looks up a localized string similar to Operator Name.

```
public static string OperatorName { get; }
```

# Property Value

[string](#) 

# RangeBaselineRangeValue

Looks up a localized string similar to Baseline Range Value.

```
public static string RangeBaselineRangeValue { get; }
```

## Property Value

[string](#) 

# RangeCodec

Looks up a localized string similar to 3D Codec.

```
public static string RangeCodec { get; }
```

## Property Value

[string](#) 

# RangeCompressionQuality

Looks up a localized string similar to 3D Compression Quality.

```
public static string RangeCompressionQuality { get; }
```

## Property Value

[string](#) 

# RangeDataBitDepth

Looks up a localized string similar to 3D Data Bit Depth.

```
public static string RangeDataBitDepth { get; }
```

## Property Value

[string](#) 

# RangeDataSize

Looks up a localized string similar to 3D Data Size.

```
public static string RangeDataSize { get; }
```

## Property Value

[string](#) 

# RangeInvalidPixelValue

Looks up a localized string similar to 3D Invalid Pixel Value.

```
public static string RangeInvalidPixelValue { get; }
```

## Property Value

[string](#) 

# RangeLength

Looks up a localized string similar to 3D Length.

```
public static string RangeLength { get; }
```

## Property Value

[string](#) 

# RangeLongitudinalResolution

Looks up a localized string similar to 3D Longitudinal Resolution.

```
public static string RangeLongitudinalResolution { get; }
```

## Property Value

[string](#) 

# RangePixelStorageOrder

Looks up a localized string similar to 3D Pixel Storage Order.

```
public static string RangePixelStorageOrder { get; }
```

## Property Value

[string](#)

# RangeRegistration

Looks up a localized string similar to 3D Registration.

```
public static string RangeRegistration { get; }
```

## Property Value

[string](#)

# RangeTransverseResolution

Looks up a localized string similar to 3D Transverse Resolution.

```
public static string RangeTransverseResolution { get; }
```

## Property Value

[string](#)

# RangeVerticalResolution

Looks up a localized string similar to 3D Vertical Resolution.

```
public static string RangeVerticalResolution { get; }
```

## Property Value

[string](#)

# RangeWidth

Looks up a localized string similar to 3D Width.

```
public static string RangeWidth { get; }
```

## Property Value

[string](#)

# ResourceManager

Returns the cached ResourceManager instance used by this class.

```
public static ResourceManager ResourceManager { get; }
```

## Property Value

[ResourceManager](#)

# RouteName

Looks up a localized string similar to Route Name.

```
public static string RouteName { get; }
```

## Property Value

[string](#)

# SensorSystem

Looks up a localized string similar to Sensor System.

```
public static string SensorSystem { get; }
```

## Property Value

[string](#)

# SoftwareVersion

Looks up a localized string similar to Software Version.

```
public static string SoftwareVersion { get; }
```

## Property Value

[string](#)

# Speed

Looks up a localized string similar to Speed.

```
public static string Speed { get; }
```

## Property Value

[string](#)

# StateName

Looks up a localized string similar to State Name.

```
public static string StateName { get; }
```

## Property Value

[string](#)

# TimeCollected

Looks up a localized string similar to Time.

```
public static string TimeCollected { get; }
```

## Property Value

[string](#)



# TimeStamp

Looks up a localized string similar to Timestamp.

```
public static string TimeStamp { get; }
```

## Property Value

[string](#)

# VehicleName

Looks up a localized string similar to Vehicle Name.

```
public static string VehicleName { get; }
```

## Property Value

[string](#)

# Version

Looks up a localized string similar to Version.

```
public static string Version { get; }
```

## Property Value

[string](#)

# Namespace ProVAL.Clarity.Api.Analysis

## Classes

[RuttingAnalyzer](#)

[RuttingResult](#)

Valid values will be provided for CenterRutDepth or both InnerRutDepth and OuterRutDepth. Invalid values are NaN.

## Interfaces

[IRuttingAnalyzer](#)

# Interface IRuttingAnalyzer

Namespace: [ProVAL.Clarity.Api.Analysis](#)

Assembly: ProVAL.Clarity.Api.dll

```
public interface IRuttingAnalyzer
```

## Properties

### InnerEdgeDistance

millimeters

```
double InnerEdgeDistance { get; set; }
```

Property Value

[double](#)

### OuterEdgeDistance

millimeters

```
double OuterEdgeDistance { get; set; }
```

Property Value

[double](#)

## Methods

### CalculateRutDepth(float[])

```
RuttingResult CalculateRutDepth(float[] elevation)
```

Parameters

elevation [float](#)  

millimeters

## Returns

[RuttingResult](#)

# Class RuttingAnalyzer

Namespace: [ProVAL.Clarity.Api.Analysis](#)

Assembly: ProVAL.Clarity.Api.dll

```
public class RuttingAnalyzer : IRuttingAnalyzer
```








## Inheritance

[object](#)  ← RuttingAnalyzer

## Implements

[IRuttingAnalyzer](#)

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Constructors

### RuttingAnalyzer(float)

```
public RuttingAnalyzer(float sampleInterval)
```

## Parameters

**sampleInterval** [float](#) 

millimeters

## Properties

### InnerEdgeDistance

millimeters

```
public double InnerEdgeDistance { get; set; }
```

## Property Value

[double](#) 

# OuterEdgeDistance

millimeters

```
public double OuterEdgeDistance { get; set; }
```

## Property Value

[double](#)

## Methods

### CalculateRutDepth(float[])

```
public RuttingResult CalculateRutDepth(float[] elevation)
```

## Parameters

elevation [float](#) []

millimeters

## Returns

[RuttingResult](#)

# Class RuttingResult


Namespace: [ProVAL.Clarity.Api.Analysis](#)

Assembly: ProVAL.Clarity.Api.dll








Valid values will be provided for CenterRutDepth or both InnerRutDepth and OuterRutDepth. Invalid values are NaN.

```
public class RuttingResult
```

## Inheritance

[object](#)  ← RuttingResult

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Constructors

### RuttingResult()

```
public RuttingResult()
```

### RuttingResult(float)

```
public RuttingResult(float centerRutDepth)
```

## Parameters

centerRutDepth [float](#) 

### RuttingResult(float, float)

```
public RuttingResult(float innerRutDepth, float outerRutDepth)
```

## Parameters

innerRutDepth [float](#) 

outerRutDepth [float](#)

## Properties

### CenterRutDepth

Value is in millimeters. Invalid value is NaN.

```
public float CenterRutDepth { get; }
```

#### Property Value

[float](#)

### InnerRutDepth

Value is in millimeters. Invalid value is NaN.

```
public float InnerRutDepth { get; }
```

#### Property Value

[float](#)

### OuterRutDepth

Value is in millimeters. Invalid value is NaN.

```
public float OuterRutDepth { get; }
```

#### Property Value

[float](#)



# Namespace ProVAL.Clarity.Api.IO

## Classes

### [BinaryIntensityReader](#)

Provides methods to read intensity values from binary data.

### [BinaryRangeReader](#)

Provides methods to read range values from binary data.

### [CompressionFactory](#)

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

### [CrgFileReader](#)

### [CrgParser](#)

Parses the header

### [FileHelpers](#)

### [FileReaderFactory](#)

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

### [ImageExporter](#)

Provides methods to create an image from a source and write it to an image file.

### [PpfWriter](#)

Provides methods to write PPF sections and metadata.

### [PpfWriter1dot05](#)

Provides methods to write profiles that comply with version 1.05 of the E2560 specification, commonly referred to as the PPF format.

### [PpfWriter1dot06](#)

Provides methods to write profiles that comply with version 1.06 of the E2560 specification, commonly referred to as the PPF format. Version 1.06 supports double-precision metadata.

### [ProfileWriterFactory](#)

### [PsiFileReader](#)

Provides properties and methods to read files that use the format defined by AASHTO MP 47.

### [TextProfileWriter](#)

### [ZipCompression](#)

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

## Interfaces

### [ICompressionFactory](#)

Provides method to create compression-related classes.

### [ICompressionReader](#)

Provides methods for decompressing data.

### [IFileReader](#)

Provides method to read header, intensity, range, and metadata sections from a file.

### [IFileReaderFactory](#)

Provides methods to create IFileReader objects.

### [IImageFileReaderFactory](#)

Provides methods to create an IFileReader from an image file, such as JPEG.

### [IImageReaderFactory](#)

Provides methods to create intensity and range readers from a source.

### [IIntensityReader](#)

Provides methods to read intensity data from a source.

### [IProfileWriter](#)

Provides methods to write profile data.

### [IProfileWriterFactory](#)

### [IRangeReader](#)

Provides methods to read range data from a source.

## Enums

### [PpfDataType](#)

### [PpfDistanceUnit](#)

### [PpfFileVersion](#)

### [PpfMetadataId](#)

### [PpfSpeedUnit](#)

### [ProfileFileFormat](#)

# Class BinaryIntensityReader


Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to read intensity values from binary data.

```
public class BinaryIntensityReader : IIntensityReader, IDisposable
```








## Inheritance

[object](#)  ← BinaryIntensityReader

## Implements

[IIntensityReader](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Remarks

Binary data contains only intensity data. Each byte corresponds directly to an intensity value.

## Constructors

### BinaryIntensityReader(byte[])

```
public BinaryIntensityReader(byte[] data)
```

## Parameters

data [byte](#)  []

## Methods

### CopyIntensityTo(Stream)

Copy all binary data to the specified stream.

```
public void CopyIntensityTo(Stream stream)
```

## Parameters

`stream` [Stream](#)

## Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

## Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

`disposing` [bool](#)

## GetIntensityValues()

Read intensity values from a source.

```
public byte[] GetIntensityValues()
```

## Returns

[byte](#)

The intensity values as decoded from the source. An empty array is returned if no intensity data exists.

# Class BinaryRangeReader


Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to read range values from binary data.

```
public class BinaryRangeReader : IRangeReader, IDisposable
```








## Inheritance

[object](#)  ← BinaryRangeReader

## Implements

[IRangeReader](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Remarks

Binary data contains only range data. Each 16-bit value corresponds directly to a range value.

## Constructors

### BinaryRangeReader(byte[])

```
public BinaryRangeReader(byte[] data)
```

## Parameters

data [byte](#)  []

## Methods

### Dispose()


Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

# Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

disposing [bool](#) 

# GetRegisteredValues()

Always returns an empty array.

```
public float[] GetRegisteredValues()
```

## Returns

[float](#)  []

# GetUnregisteredValues()

Read range values from a source.

```
public ushort[] GetUnregisteredValues()
```

## Returns

[ushort](#)  []

The unregistered values as decoded from the source. An empty array is returned if no unregistered data exists.

# Class CompressionFactory


Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

```
public class CompressionFactory : ICompressionFactory
```








## Inheritance

[object](#)  ← CompressionFactory

## Implements

[ICompressionFactory](#)

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  , [object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

# Methods

## CreateReader()

Creates a reader.

```
public ICompressionReader CreateReader()
```

## Returns

[ICompressionReader](#)

A ZipCompression class is always returned.

# Class CrgFileReader

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

```
public class CrgFileReader : IFileReader, IRangeReader, IDisposable
```








## Inheritance

[object](#)  ← CrgFileReader

## Implements

[IFileReader](#), [IRangeReader](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Constructors

### CrgFileReader(byte[])

```
public CrgFileReader(byte[] data)
```

## Parameters

data [byte](#)  []

## Remarks

The data will be written to a temporary file and then read.

### CrgFileReader(string)

```
public CrgFileReader(string path)
```

## Parameters

path [string](#) 



# Methods

## CopyIntensityTo(Stream)

Copy intensity data to stream.

```
public void CopyIntensityTo(Stream stream)
```

### Parameters

stream [Stream](#) 

### Remarks

For some file types, this is all data in the file.

## CopyIntensityToAsync(Stream)

Copy intensity data to stream.

```
public Task CopyIntensityToAsync(Stream stream)
```

### Parameters

stream [Stream](#) 

### Returns

[Task](#) 

### Remarks

For some file types, this is all data in the file.

## CopyRangeTo(Stream)

Copy range data to stream.

```
public void CopyRangeTo(Stream stream)
```

### Parameters

`stream` [Stream](#)

## Remarks

For some file types, this is all data in the file.

## CopyRangeToAsync(Stream)

Copy range data to stream.

```
public Task CopyRangeToAsync(Stream stream)
```

## Parameters

`stream` [Stream](#)

## Returns

[Task](#)

## Remarks

For some file types, this is all data in the file.

## Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

## Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

`disposing` [bool](#)

## GetIntensity()

Gets a copy of the intensity data.

```
public byte[] GetIntensity()
```

Returns

[byte](#)[]

Remarks

For some file types, this is all data in the file.

## GetMetadata()

```
public Collection<Metadata> GetMetadata()
```

Returns

[Collection](#) <[Metadata](#)>

## GetRange()

Gets a copy of the range data.

```
public byte[] GetRange()
```

Returns

[byte](#)[]

Remarks

For some file types, this is all data in the file.

## GetRegisteredValues()

Read range values from a source.

```
public float[] GetRegisteredValues()
```

## Returns

[float](#)  []

The registered values as decoded from the source. An empty array is returned if no registered data exists.

## GetUnregisteredValues()

Always returns an empty array.

```
public ushort[] GetUnregisteredValues()
```

## Returns

[ushort](#)  []

## ReadInfo()

```
public PavementImageInfo ReadInfo()
```

## Returns

[PavementImageInfo](#)

# Class CrgParser

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Parses the header

```
public class CrgParser : IDisposable
```








## Inheritance

[object](#)  ← CrgParser

## Implements

[IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

# Constructors

## CrgParser(Stream)

```
public CrgParser(Stream stream)
```

## Parameters

**stream** [Stream](#) 

# Properties

## Latitude

```
public double Latitude { get; }
```

## Property Value

[double](#) 

# Longitude

```
public double Longitude { get; }
```

## Property Value

[double](#)

## Methods

### Dispose()


Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

### Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

*disposing* [bool](#)

### Parse()

Reads information from the data, such as Latitude and Longitude.

```
public void Parse()
```

# Class FileHelpers

Namespace: [ProVAL.Clarity.Api.IO](#)








Assembly: ProVAL.Clarity.Api.dll

```
public static class FileHelpers
```

## Inheritance

[object](#)  ← FileHelpers

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Methods

### AppendSuffix(string, string)

Append a suffix to a file name before the extension.

```
public static string AppendSuffix(string path, string suffix)
```

## Parameters

**path** [string](#) 

**suffix** [string](#) 

## Returns

[string](#) 

Returns empty string if append fails.

### Get2dCodecFromFileName(string)

```
public static Codec2d Get2dCodecFromFileName(string file)
```

## Parameters

file [string](#)

Returns

[Codec2d](#)

## Get3dCodecFromFileName(string)

```
public static Codec3d Get3dCodecFromFileName(string file)
```

Parameters

file [string](#)

Returns

[Codec3d](#)

## GetImageFormatFrom2dCodec(Codec2d)

```
public static ImageFormat GetImageFormatFrom2dCodec(Codec2d codec)
```

Parameters

codec [Codec2d](#)

Returns

[ImageFormat](#)

## GetImageFormatFrom3dCodec(Codec3d)

```
public static ImageFormat GetImageFormatFrom3dCodec(Codec3d codec)
```

Parameters

codec [Codec3d](#)

Returns



[ImageFormat](#)

## GetImageFormatFromFileName(string)

```
public static ImageFormat GetImageFormatFromFileName(string file)
```

### Parameters

file [string](#)

### Returns

[ImageFormat](#)

# Class FileReaderFactory

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

```
public class FileReaderFactory : IFileReaderFactory
```








## Inheritance

[object](#)  ← FileReaderFactory

## Implements

[IFileReaderFactory](#).

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  , [object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Constructors

### FileReaderFactory(IImageFileReaderFactory)

```
public FileReaderFactory(IImageFileReaderFactory imageFileReaderFactory)
```

## Parameters

**imageFileReaderFactory** [IImageFileReaderFactory](#).

## Methods

### CreateReader(string)

Create an IFileReader based on the file extension.

```
public virtual IFileReader? CreateReader(string path)
```

## Parameters

path [string](#) 

Returns

[IFileReader](#)

# Interface ICompressionFactory

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides method to create compression-related classes.

```
public interface ICompressionFactory
```

## Methods

### CreateReader()

```
ICompressionReader CreateReader()
```

### Returns

[ICompressionReader](#)

# Interface ICompressionReader

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods for decompressing data.

```
public interface ICompressionReader
```

## Methods

### Read(byte[])

Decompresses the data.

```
byte[] Read(byte[] data)
```

## Parameters

data [byte](#)[]

## Returns

[byte](#)[]

# Interface IFileReader

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides method to read header, intensity, range, and metadata sections from a file.

```
public interface IFileReader : IDisposable
```

## Inherited Members

[IDisposable.Dispose\(\)](#) 

## Methods

### CopyIntensityTo(Stream)

Copy intensity data to stream.

```
void CopyIntensityTo(Stream stream)
```

## Parameters

stream [Stream](#) 

## Remarks

For some file types, this is all data in the file.

### CopyIntensityToAsync(Stream)

Copy intensity data to stream.

```
Task CopyIntensityToAsync(Stream stream)
```

## Parameters

stream [Stream](#) 

## Returns

[Task](#) 

## Remarks

For some file types, this is all data in the file.

## CopyRangeTo(Stream)

Copy range data to stream.

```
void CopyRangeTo(Stream stream)
```

## Parameters

**stream** [Stream](#) 

## Remarks

For some file types, this is all data in the file.

## CopyRangeToAsync(Stream)

Copy range data to stream.

```
Task CopyRangeToAsync(Stream stream)
```

## Parameters

**stream** [Stream](#) 

## Returns

[Task](#) 

## Remarks

For some file types, this is all data in the file.

## GetIntensity()

Gets a copy of the intensity data.

```
byte[] GetIntensity()
```

## Returns

[byte](#) []

## Remarks

For some file types, this is all data in the file.

## GetMetadata()

```
Collection<Metadata> GetMetadata()
```

## Returns

[Collection](#) <[Metadata](#)>

## GetRange()

Gets a copy of the range data.

```
byte[] GetRange()
```

## Returns

[byte](#) []

## Remarks

For some file types, this is all data in the file.

## ReadInfo()

```
PavementImageInfo ReadInfo()
```

## Returns

[PavementImageInfo](#)



# Interface IFileReaderFactory

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to create IFileReader objects.

```
public interface IFileReaderFactory
```

## Methods

### CreateReader(string)

Create an IFileReader based on the file extension.

```
IFileReader? CreateReader(string path)
```

## Parameters

**path** [string](#) 

## Returns

[IFileReader](#)

# Interface IImageFileReaderFactory

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to create an IFileReader from an image file, such as JPEG.

```
public interface IImageFileReaderFactory
```

## Methods

### CreateReader(string)

```
IFileReader? CreateReader(string path)
```

## Parameters

[path](#) [string](#)

## Returns

[IFileReader](#)

# Interface IImageReaderFactory

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to create intensity and range readers from a source.

```
public interface IImageReaderFactory
```

## Methods

### CreateIntensityReader(Codec2d, byte[])

```
IIntensityReader? CreateIntensityReader(Codec2d codec, byte[] data)
```

#### Parameters

codec [Codec2d](#)

data [byte](#)[]

#### Returns

[IIntensityReader](#)

### CreateRangeReader(Codec3d, byte[])

```
IRangeReader? CreateRangeReader(Codec3d codec, byte[] data)
```

#### Parameters

codec [Codec3d](#)

data [byte](#)[]

#### Returns

[IRangeReader](#)

# Interface IIntensityReader

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to read intensity data from a source.

```
public interface IIntensityReader : IDisposable
```

## Inherited Members

[IDisposable.Dispose\(\)](#) 

## Methods

### GetIntensityValues()

Read intensity values from a source.

```
byte[] GetIntensityValues()
```

## Returns

[byte](#)  []

The intensity values as decoded from the source. An empty array is returned if no intensity data exists.

# Interface IProfileWriter

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to write profile data.

```
public interface IProfileWriter : IDisposable
```

## Inherited Members

[IDisposable.Dispose\(\)](#) 

## Methods

### WriteLongitudinal(PavementImageInfo, ImageData<float>, int)

Writes a longitudinal profile.

```
bool WriteLongitudinal(PavementImageInfo info, ImageData<float> data, int column)
```

## Parameters

info [PavementImageInfo](#)

data [ImageData<float>](#) 

column [int](#) 

0 denotes the left-most column in the ImageData.

## Returns

[bool](#) 

### WriteTransverse(PavementImageInfo, ImageData<float>, int)

Writes a transverse profile.

```
bool WriteTransverse(PavementImageInfo info, ImageData<float> data, int row)
```

## Parameters

info [PavementImageInfo](#)

data [ImageData](#) <[float](#) >

row [int](#)

0 denotes the bottom-most row in the ImageData.

## Returns

[bool](#)

# Interface IProfileWriterFactory

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

```
public interface IProfileWriterFactory
```

## Methods

### Create(string, ProfileFileFormat)

Create an IProfileWriter.

```
IProfileWriter? Create(string file, ProfileFileFormat format)
```

## Parameters

**file** [string](#)

Target file.

**format** [ProfileFileFormat](#)

## Returns

[IProfileWriter](#)

# Interface IRangeReader

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to read range data from a source.

```
public interface IRangeReader : IDisposable
```

## Inherited Members

[IDisposable.Dispose\(\)](#) 

## Methods

### GetRegisteredValues()

Read range values from a source.

```
float[] GetRegisteredValues()
```

## Returns

[float](#)  []

The registered values as decoded from the source. An empty array is returned if no registered data exists.

### GetUnregisteredValues()

Read range values from a source.

```
ushort[] GetUnregisteredValues()
```

## Returns

[ushort](#)  []

The unregistered values as decoded from the source. An empty array is returned if no unregistered data exists.



# Class ImageExporter


Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll








Provides methods to create an image from a source and write it to an image file.

```
public class ImageExporter
```

## Inheritance

[object](#)  ← ImageExporter

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) , [object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

# Constructors

## ImageExporter(IFileReaderFactory, IClarityImageFactory)

```
public ImageExporter(IFileReaderFactory fileReaderFactory, IClarityImageFactory imageFactory)
```

## Parameters

fileReaderFactory [IFileReaderFactory](#)


imageFactory [IClarityImageFactory](#)


# Methods

## ExportIntensity(string, string)

```
public Task<bool> ExportIntensity(string sourceFile, string targetFile)
```

## Parameters

sourceFile [string](#) 

targetFile [string](#) 

## Returns

[Task](#) <[bool](#)>

## ExportRange(string, string)

```
public Task<bool> ExportRange(string sourceFile, string targetFile)
```

## Parameters

sourceFile [string](#)

targetFile [string](#)

## Returns

[Task](#) <[bool](#)>

# Enum PpfDataType

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum PpfDataType
```

## Fields

Double = 5

Int32 = 3

Int8 = 17

Single = 4

String = 8

# Enum PpfDistanceUnit

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum PpfDistanceUnit
```

## Fields

```
Centimetres = 6
```

```
Feet = 2
```

```
Inches = 1
```

```
Kilometres = 8
```

```
Metres = 7
```

```
Miles = 4
```

```
Millimetres = 5
```

```
Mils = 73
```

# Enum PpfFileVersion

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum PpfFileVersion
```

## Fields

```
Version1dot05 = 1
```

```
Version1dot06 = 2
```

# Enum PpfMetadataId

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum PpfMetadataId
```

## Fields

AgencyName = 271

AgencyNumber = 272

AmbientTemp = 291

BeginRefMarker = 284

BeginStation = 283

ChannelType = 523

ClimaticConditions = 293

Comments = 313

CoordinateSystem = 316

CountryName = 301

CountyName = 273

CountyNumber = 274

DataHistory = 294

DateDataCollected = 261

DateImported = 297

DateLastModified = 295

DefaultSectionKey = 314

Direction = 286

DistanceBetweenTransversePoints = 517

DistanceOffset = 525

ElevationUnit = 769

EndRefMarker = 288

EndStation = 287

EventMarkerAltitude = 534

EventMarkerAltitudeHighPrecision = 549

EventMarkerIndex = 528

EventMarkerLatitude = 533

EventMarkerLatitudeHighPrecision = 548

EventMarkerLongitude = 532

EventMarkerLongitudeHighPrecision = 547

EventMarkerText = 529

EventMarkerType = 530

FileKey = 309

Hemisphere = 324

JointLocationIndex = 560

JointProfileIndex = 559

JointType = 561

LaneID = 282

LoggedCoordinateDistance = 538

LoggedCoordinateDistanceHighPrecision = 552

LoggedCoordinateElevationHighPrecision = 555

LoggedCoordinateElevationLowPrecision = 541

LoggedCoordinateLatitudeHighPrecision = 551

LoggedCoordinateLongitudeHighPrecision = 550

LoggedCoordinateX = 535

LoggedCoordinateY = 536

LongDataStorageFormat = 522

LongSensorNames = 520

LongSensorSpacing = 518

LongUnit = 768

LongitudinalSpeed = 557

LongitudinalSpeedLocation = 558

NearbyCity = 275

None = 0

NumLongChannels = 512

NumLongPoints = 514

NumTransverseChannels = 513

NumTransversePoints = 515

OriginalFile = 265

OriginalFileKey = 315

PavementSurface = 285

ProfileKeys = 310

ProfileStartIndex = 526

ProfileStopIndex = 527

ProfilerDirection = 308

ProfilerOperatorName = 263

ProfilerType = 300

ProfilingInstrumentID = 259

Roadway = 281

RouteCoordinateElevationHighPrecision = 556

RouteCoordinateElevationLowPrecision = 542

RouteCoordinateLatitudeHighPrecision = 554

RouteCoordinateLongitudeHighPrecision = 553

RouteCoordinateX = 539

RouteCoordinateY = 540

RouteImage = 325

RunNumber = 299

SampleInterval = 516

SectionKeys = 311



SectionNames = 312

SectionTitle = 258

SensorSpacingUnit = 772

SpeedUnit = 770

StartElevation = 320

StartLatitude = 319

StartLatitudeHighPrecision = 544

StartLongitude = 318

StartLongitudeHighPrecision = 543

StartMilepost = 306

StateProvinceName = 302

StopElevation = 323

StopLatitude = 322

StopLatitudeHighPrecision = 546

StopLongitude = 321

StopLongitudeHighPrecision = 545

StopMilepost = 307

SurfaceTemp = 292

TempUnit = 771

ThumbnailImage = 305

TimeDataCollected = 262

TimeImported = 298

TimeLastModified = 296

TransverseSensorNames = 521

TransverseSensorSpacing = 519

UTMZone = 317

VehicleID = 260

VehicleSpeed = 264

WindDirection = 304

WindSpeed = 303

# Enum PpfSpeedUnit

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum PpfSpeedUnit
```

## Fields

FeetPerSecond = 24

KilometresPerHour = 26

MetresPerSecond = 27

MilesPerHour = 28

# Class PpfWriter


Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides methods to write PPF sections and metadata.

```
public class PpfWriter : IDisposable
```








## Inheritance

[object](#)  ← PpfWriter

## Implements

[IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  ,  
[object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

# Constructors

## PpfWriter(BinaryWriter)

```
public PpfWriter(BinaryWriter writer)
```

## Parameters


**writer** [BinaryWriter](#) 

# Properties

## BaseStream

```
public Stream BaseStream { get; }
```

## Property Value

[Stream](#) 

# Methods

## Dispose()


Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

## Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

disposing [bool](#)

## SeekToMetadataContent()

```
public void SeekToMetadataContent()
```

## WriteCustomMetadata(int, string, string)

```
public int WriteCustomMetadata(int tag, string name, string value)
```

## Parameters

tag [int](#)

name [string](#)

value [string](#)

## Returns

[int](#)

## WriteFileHeader(string, string, int, int, int)

```
public void WriteFileHeader(string fileVersion, string softwareVersion, int longitudinalOffset, int transverseOffset, int metadataCount)
```

## Parameters

fileVersion [string](#)

softwareVersion [string](#)

longitudinalOffset [int](#)

transverseOffset [int](#)

metadataCount [int](#)

## WriteMetadata(PpfMetadataId, byte)

```
public int WriteMetadata(PpfMetadataId tag, byte value)
```

## Parameters

tag [PpfMetadataId](#)

value [byte](#)

## Returns

[int](#)

## WriteMetadata(PpfMetadataId, byte[])

```
public int WriteMetadata(PpfMetadataId tag, byte[] value)
```

## Parameters

tag [PpfMetadataId](#)

value [byte](#) []

## Returns

[int](#)

## WriteMetadata(PpfMetadataId, double)

```
public int WriteMetadata(PpfMetadataId tag, double value)
```

### Parameters

tag [PpfMetadataId](#)

value [double](#)

### Returns

[int](#)

## WriteMetadata(PpfMetadataId, double[])

```
public int WriteMetadata(PpfMetadataId tag, double[] value)
```

### Parameters

tag [PpfMetadataId](#)

value [double](#) []

### Returns

[int](#)

## WriteMetadata(PpfMetadataId, int)

```
public int WriteMetadata(PpfMetadataId tag, int value)
```

### Parameters

tag [PpfMetadataId](#)

value [int](#)

### Returns

[int](#)

## WriteMetadata(PpfMetadataId, int[])

```
public int WriteMetadata(PpfMetadataId tag, int[] value)
```

### Parameters

tag [PpfMetadataId](#)

value [int](#)[]

### Returns

[int](#)

## WriteMetadata(PpfMetadataId, float)

```
public int WriteMetadata(PpfMetadataId tag, float value)
```

### Parameters

tag [PpfMetadataId](#)

value [float](#)

### Returns

[int](#)

## WriteMetadata(PpfMetadataId, float[])

```
public int WriteMetadata(PpfMetadataId tag, float[] value)
```

### Parameters

tag [PpfMetadataId](#)

value [float](#)[]

### Returns

[int](#)



## WriteMetadata(PpfMetadataId, string)

```
public int WriteMetadata(PpfMetadataId tag, string value)
```

### Parameters

tag [PpfMetadataId](#)

value [string](#)

### Returns

[int](#)

## WriteMetadata(PpfMetadataId, string[])

```
public int WriteMetadata(PpfMetadataId tag, string[] value)
```

### Parameters

tag [PpfMetadataId](#)

value [string](#) []

### Returns

[int](#)

## WriteMetadataHeader(PpfMetadataId, PpfDataType, int, int)

```
public void WriteMetadataHeader(PpfMetadataId tag, PpfDataType dataType, int arraySize, int dataLength)
```

### Parameters

tag [PpfMetadataId](#)

dataType [PpfDataType](#)

arraySize [int](#)

dataLength [int](#)

# WriteMetadataHeader(int, PpfDataType, int, int, string)

```
public void WriteMetadataHeader(int tag, PpfDataType dataType, int arraySize, int dataLength, string name)
```

## Parameters

tag [int](#)

dataType [PpfDataType](#)

arraySize [int](#)

dataLength [int](#)

name [string](#)

## WriteTrailer()

```
public void WriteTrailer()
```

# Class PpfWriter1dot05

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll


Provides methods to write profiles that comply with version 1.05 of the E2560 specification, commonly referred to as the PPF format.

```
public class PpfWriter1dot05 : IProfileWriter, IDisposable
```








## Inheritance

[object](#)  ← PpfWriter1dot05

## Implements

[IProfileWriter](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  , [object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Constructors

### PpfWriter1dot05(PpfWriter)

```
public PpfWriter1dot05(PpfWriter writer)
```

## Parameters

**writer** [PpfWriter](#)

## Methods

### Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

# Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

disposing [bool](#)

# WriteLongitudinal(PavementImageInfo, ImageData<float>, int)

Writes a longitudinal profile.

```
public bool WriteLongitudinal(PavementImageInfo info, ImageData<float> data, int column)
```

## Parameters

info [PavementImageInfo](#)

data [ImageData<float>](#)

column [int](#)

0 denotes the left-most column in the ImageData.

## Returns

[bool](#)

# WriteTransverse(PavementImageInfo, ImageData<float>, int)

Writes a transverse profile.

```
public bool WriteTransverse(PavementImageInfo info, ImageData<float> data, int row)
```

## Parameters

info [PavementImageInfo](#)

data [ImageData<float>](#)

row [int](#)

0 denotes the bottom-most row in the ImageData.

# Returns

[bool](#) 

# Class PpfWriter1dot06

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll


Provides methods to write profiles that comply with version 1.06 of the E2560 specification, commonly referred to as the PPF format. Version 1.06 supports double-precision metadata.

```
public class PpfWriter1dot06 : IProfileWriter, IDisposable
```








## Inheritance

[object](#)  ← PpfWriter1dot06

## Implements

[IProfileWriter](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  , [object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Constructors

### PpfWriter1dot06(PpfWriter)

```
public PpfWriter1dot06(PpfWriter writer)
```

## Parameters

**writer** [PpfWriter](#)

## Methods

### Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

# Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

disposing [bool](#)

# WriteLongitudinal(PavementImageInfo, ImageData<float>, int)

Writes a longitudinal profile.

```
public bool WriteLongitudinal(PavementImageInfo info, ImageData<float> data, int column)
```

## Parameters

info [PavementImageInfo](#)

data [ImageData<float>](#)

column [int](#)

0 denotes the left-most column in the ImageData.

## Returns

[bool](#)

# WriteTransverse(PavementImageInfo, ImageData<float>, int)

Writes a transverse profile.

```
public bool WriteTransverse(PavementImageInfo info, ImageData<float> data, int row)
```

## Parameters

info [PavementImageInfo](#)

data [ImageData<float>](#)

row [int](#)

0 denotes the bottom-most row in the ImageData.

# Returns

[bool](#) 



# Enum ProfileFileFormat

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

```
public enum ProfileFileFormat
```

## Fields

None = 0

Ppf1dot05 = 2

Ppf1dot06 = 3

TabDelimited = 1

# Class ProfileWriterFactory

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

```
public class ProfileWriterFactory : IProfileWriterFactory
```








## Inheritance

[object](#)  ← ProfileWriterFactory

## Implements

[IProfileWriterFactory](#)

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Methods

### Create(string, ProfileFileFormat)

Create an IProfileWriter.

```
public IProfileWriter? Create(string file, ProfileFileFormat format)
```

## Parameters

**file** [string](#) 

Target file.

**format** [ProfileFileFormat](#)

## Returns

[IProfileWriter](#)

# Class PsiFileReader


Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Provides properties and methods to read files that use the format defined by AASHTO MP 47.

```
public class PsiFileReader : IFileReader, IDisposable
```








## Inheritance

[object](#)  ← PsiFileReader

## Implements

[IFileReader](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

# Constructors

## PsiFileReader(string)

```
public PsiFileReader(string path)
```

## Parameters

path [string](#) 

# Properties

## Length

Length in bytes of the source.

```
public long Length { get; }
```

## Property Value

[long](#) 

# Length2d

Length in bytes of the 2D intensity data section.

```
public uint Length2d { get; }
```

## Property Value

[uint](#)

# Length3d

Length in bytes of the 3D range data section.

```
public uint Length3d { get; }
```

## Property Value

[uint](#)

# LengthMetadata

Length in bytes of the metadata section.

```
public uint LengthMetadata { get; }
```

## Property Value

[uint](#)

## Methods

### CopyIntensityTo(Stream)

Copy intensity data to stream.

```
public void CopyIntensityTo(Stream stream)
```

## Parameters

`stream` [Stream](#)

## Remarks

For some file types, this is all data in the file.

## CopyIntensityToAsync(Stream)

Copy intensity data to stream.

```
public Task CopyIntensityToAsync(Stream stream)
```

## Parameters

`stream` [Stream](#)

## Returns

[Task](#)

## Remarks

For some file types, this is all data in the file.

## CopyRangeTo(Stream)

Copy range data to stream.

```
public void CopyRangeTo(Stream stream)
```

## Parameters

`stream` [Stream](#)

## Remarks

For some file types, this is all data in the file.

## CopyRangeToAsync(Stream)

Copy range data to stream.

```
public Task CopyRangeToAsync(Stream stream)
```

## Parameters

**stream** [Stream](#)

## Returns

[Task](#)

## Remarks

For some file types, this is all data in the file.

## Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

## Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

**disposing** [bool](#)

## GetIntensity()

Gets a copy of the intensity data.

```
public byte[] GetIntensity()
```

## Returns

[byte](#)

## Remarks

For some file types, this is all data in the file.

## GetMetadata()

```
public Collection<Metadata> GetMetadata()
```

Returns

[Collection](#)  [<Metadata>](#)

## GetRange()

Gets a copy of the range data.

```
public byte[] GetRange()
```

Returns

[byte](#)  []

Remarks

For some file types, this is all data in the file.

## ReadInfo()

Reads the file header.

```
public PavementImageInfo ReadInfo()
```

Returns

[PavementImageInfo](#)

## ReadSignature()

```
public ReadOnlySpan<char> ReadSignature()
```

Returns

[ReadOnlySpan](#) [<char>](#)

## ReadTrailer()

```
public ReadOnlySpan<char> ReadTrailer()
```

Returns

[ReadOnlySpan](#) [<char>](#)



# Class TextProfileWriter

Namespace: [ProVAL.Clarity.Api.IO](#)


Assembly: ProVAL.Clarity.Api.dll

```
public class TextProfileWriter : IProfileWriter, IDisposable
```








## Inheritance

[object](#)  ← TextProfileWriter

## Implements

[IProfileWriter](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Constructors

### TextProfileWriter(TextWriter, char)

```
public TextProfileWriter(TextWriter writer, char delimiter)
```

## Parameters

**writer** [TextWriter](#) 

**delimiter** [char](#) 

## Methods

### Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

### Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

disposing [bool](#)

# WriteLongitudinal(PavementImageInfo, ImageData<float>, int)

Writes a longitudinal profile.

```
public bool WriteLongitudinal(PavementImageInfo info, ImageData<float> data, int column)
```

## Parameters

info [PavementImageInfo](#)

data [ImageData<float>](#)

column [int](#)

0 denotes the left-most column in the ImageData.

## Returns

[bool](#)

# WriteTransverse(PavementImageInfo, ImageData<float>, int)

Writes a transverse profile.

```
public bool WriteTransverse(PavementImageInfo info, ImageData<float> data, int row)
```

## Parameters

info [PavementImageInfo](#)

data [ImageData<float>](#)

row [int](#)

0 denotes the bottom-most row in the ImageData.

## Returns



# Class ZipCompression

Namespace: [ProVAL.Clarity.Api.IO](#)

Assembly: ProVAL.Clarity.Api.dll

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

```
public class ZipCompression : ICompressionReader
```








## Inheritance

[object](#)  ← ZipCompression

## Implements

[ICompressionReader](#)

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  , [object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Methods

### Read(byte[])

Decompresses the first entry in a zip archive.

```
public byte[] Read(byte[] data)
```

## Parameters

data [byte](#)  []

## Returns

[byte](#)  []

# Namespace ProVAL.Clarity.Api.Magick

## Classes

### [ClarityImage](#)

Provides properties and methods to read and write image files using the MagickImage library.

### [ImageFileReader](#)

Provides method to read header, intensity, range, and metadata sections from an image file.

### [ImageFileReaderFactory](#)

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

### [ImageIntensityReader](#)

Provides methods to read intensity values from an image source, such as a JPEG image.

### [ImageRangeReader](#)

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

### [ImageReaderFactory](#)

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

### [Q16ClarityImageFactory](#)

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

# Class ClarityImage


Namespace: [ProVAL.Clarity.Api.Magick](#)

Assembly: ProVAL.Clarity.Api.Magick.dll

Provides properties and methods to read and write image files using the MagickImage library.

```
public class ClarityImage : IClarityImage, IDisposable
```








## Inheritance

[object](#)  ← ClarityImage

## Implements

[IClarityImage](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

# Constructors

## ClarityImage(IMagickImage)

Create a ClarityImage using an IMagickImage.

```
public ClarityImage(IMagickImage image)
```

## Parameters

**image** IMagickImage

# Properties

## BitDepth

Gets the number of bits allocated for each pixel.

```
public int BitDepth { get; }
```

## Property Value

[int](#)

## DpiX

The value, in dots per inch, for the horizontal resolution.

```
public double DpiX { get; }
```

## Property Value

[double](#)

## DpiY

The value, in dots per inch, for the vertical resolution.

```
public double DpiY { get; }
```

## Property Value

[double](#)

## Height

Height of image in pixels

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

## Property Value

[int](#)

## Width

Width of image in pixels

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

## Property Value

[int](#)

## Methods

### Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

### Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

disposing [bool](#)

### GetValues()

Gets the intensity value of each pixel.

```
public byte[] GetValues()
```

## Returns

[byte](#) []

### Thumbnail(int, int)

Resizes the image to the specified size. Unnecessary information may be removed.

```
public void Thumbnail(int width, int height)
```

## Parameters



width [int](#)

height [int](#)

## Write(Stream, ImageFormat)

Write the image to a stream using the specified format.

```
public void Write(Stream stream, ImageFormat format)
```

### Parameters

stream [Stream](#)

format [ImageFormat](#)

## Write(string)

Write the image to a file. The format will be determined the file extensions.

```
public void Write(string file)
```

### Parameters

file [string](#)

## WriteValues(Stream)

Writes the intensity value for each pixel to a stream.

```
public void WriteValues(Stream stream)
```

### Parameters

stream [Stream](#)

# Class ImageFileReader


Namespace: [ProVAL.Clarity.Api.Magick](#)

Assembly: ProVAL.Clarity.Api.Magick.dll

Provides method to read header, intensity, range, and metadata sections from an image file.

```
public class ImageFileReader : IFileReader, IIntensityReader, IDisposable
```








## Inheritance

[object](#)  ← ImageFileReader

## Implements

[IFileReader](#), [IIntensityReader](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Constructors

### ImageFileReader(IMagickImageFactory<ushort>, string)

```
public ImageFileReader(IMagickImageFactory<ushort> imageFactory, string path)
```

## Parameters

**imageFactory** [IMagickImageFactory<ushort>](#)  >

**path** [string](#) 

## Methods

### CopyIntensityTo(Stream)

Copy intensity data to stream.

```
public void CopyIntensityTo(Stream stream)
```

## Parameters

`stream` [Stream](#)

## Remarks

For some file types, this is all data in the file.

## CopyIntensityToAsync(Stream)

Copy intensity data to stream.

```
public Task CopyIntensityToAsync(Stream stream)
```

## Parameters

`stream` [Stream](#)

## Returns

[Task](#)

## Remarks

For some file types, this is all data in the file.

## CopyRangeTo(Stream)

Copy range data to stream.

```
public void CopyRangeTo(Stream stream)
```

## Parameters

`stream` [Stream](#)

## Remarks

For some file types, this is all data in the file.

## CopyRangeToAsync(Stream)

Copy range data to stream.

```
public Task CopyRangeToAsync(Stream stream)
```

## Parameters

**stream** [Stream](#)

## Returns

[Task](#)

## Remarks

For some file types, this is all data in the file.

## Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

## Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

**disposing** [bool](#)

## GetIntensity()

Gets a copy of the intensity data.

```
public byte[] GetIntensity()
```

## Returns

[byte](#)

## Remarks

For some file types, this is all data in the file.

## GetIntensityValues()

Read intensity values from a source.

```
public byte[] GetIntensityValues()
```

### Returns

[byte](#)[]

The intensity values as decoded from the source. An empty array is returned if no intensity data exists.

## GetMetadata()

```
public Collection<Metadata> GetMetadata()
```

### Returns

[Collection](#) <[Metadata](#)>

## GetRange()

Returns an empty array.

```
public byte[] GetRange()
```

### Returns

[byte](#)[]

## ReadInfo()

```
public PavementImageInfo ReadInfo()
```

### Returns

[PavementImageInfo](#)



# Class ImageFileReaderFactory

Namespace: [ProVAL.Clarity.Api.Magick](#)

Assembly: ProVAL.Clarity.Api.Magick.dll

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

```
public class ImageFileReaderFactory : IImageFileReaderFactory
```








## Inheritance

[object](#)  ← ImageFileReaderFactory

## Implements

[IImageFileReaderFactory](#)

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  , [object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Constructors

### ImageFileReaderFactory(IMagickImageFactory<ushort>)

```
public ImageFileReaderFactory(IMagickImageFactory<ushort> imageFactory)
```

## Parameters

**imageFactory** [IMagickImageFactory<ushort>](#)  >

## Methods

### CreateReader(string)

```
public IFileReader? CreateReader(string path)
```

## Parameters

**path** [string](#) 

## Returns

[IFileReader](#)



# Class ImageIntensityReader

Namespace: [ProVAL.Clarity.Api.Magick](#)

Assembly: ProVAL.Clarity.Api.Magick.dll

Provides methods to read intensity values from an image source, such as a JPEG image.

```
public class ImageIntensityReader : IIntensityReader, IDisposable
```








## Inheritance

[object](#)  ← ImageIntensityReader

## Implements

[IIntensityReader](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#) , [object.Equals\(object, object\)](#) , [object.GetHashCode\(\)](#) , [object.GetType\(\)](#) ,  
[object.MemberwiseClone\(\)](#) , [object.ReferenceEquals\(object, object\)](#) , [object.ToString\(\)](#) 

## Remarks

Binary data contains only intensity data. Each byte corresponds directly to an intensity value.

## Constructors

### ImageIntensityReader(IMagickImage)

```
public ImageIntensityReader(IMagickImage image)
```

## Parameters

**image** IMagickImage

## Methods

### Dispose()


Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

# Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

disposing [bool](#) 

# GetIntensityValues()

Read intensity values from an image.

```
public byte[] GetIntensityValues()
```

## Returns

[byte](#)  []

Intensity values are ordered left to right, beginning at the bottom of an image.

# Class ImageRangeReader


Namespace: [ProVAL.Clarity.Api.Magick](#)

Assembly: ProVAL.Clarity.Api.Magick.dll

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

```
public class ImageRangeReader : IRangeReader, IDisposable
```








## Inheritance

[object](#)  ← ImageRangeReader

## Implements

[IRangeReader](#), [IDisposable](#) 

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  , [object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

# Constructors

## ImageRangeReader(IMagickImage)

```
public ImageRangeReader(IMagickImage image)
```

## Parameters

**image**  IMagickImage

# Methods

## Dispose()

Performs application-defined tasks associated with freeing, releasing, or resetting unmanaged resources.

```
public void Dispose()
```

# Dispose(bool)

```
protected virtual void Dispose(bool disposing)
```

## Parameters

disposing [bool](#)

# GetRegisteredValues()

Always returns an empty array.

```
public float[] GetRegisteredValues()
```

## Returns

[float](#) []

# GetUnregisteredValues()

Read range values from a source.

```
public ushort[] GetUnregisteredValues()
```

## Returns

[ushort](#) []

The unregistered values as decoded from the source. An empty array is returned if no unregistered data exists.

# Class ImageReaderFactory

Namespace: [ProVAL.Clarity.Api.Magick](#)

Assembly: ProVAL.Clarity.Api.Magick.dll

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

```
public class ImageReaderFactory : IImageReaderFactory
```








## Inheritance

[object](#)  ← ImageReaderFactory

## Implements

[IImageReaderFactory](#)

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  , [object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 


## Constructors

### ImageReaderFactory(ICompressionFactory, IMagickImageFactory<ushort>)

```
public ImageReaderFactory(ICompressionFactory compressionFactory, IMagickImageFactory<ushort> magickImageFactory)
```

## Parameters

**compressionFactory** [ICompressionFactory](#)

**magickImageFactory** IMagickImageFactory<[ushort](#)  >

## Methods

### CreateIntensityReader(Codec2d, byte[])

```
public IIntensityReader? CreateIntensityReader(Codec2d codec, byte[] data)
```

## Parameters

**codec** [Codec2d](#)

**data** [byte](#)[]

## Returns

[IIntensityReader](#)

## CreateRangeReader(Codec3d, byte[])

```
public IRangeReader? CreateRangeReader(Codec3d codec, byte[] data)
```

## Parameters

**codec** [Codec3d](#)

**data** [byte](#)[]

## Returns

[IRangeReader](#)

# Class Q16ClarityImageFactory


Namespace: [ProVAL.Clarity.Api.Magick](#)

Assembly: ProVAL.Clarity.Api.Magick.dll

Supports all classes in the .NET class hierarchy and provides low-level services to derived classes. This is the ultimate base class of all .NET classes; it is the root of the type hierarchy.

```
public class Q16ClarityImageFactory : IClarityImageFactory
```








## Inheritance

[object](#)  ← Q16ClarityImageFactory

## Implements

[IClarityImageFactory](#)

## Inherited Members

[object.Equals\(object\)](#)  , [object.Equals\(object, object\)](#)  , [object.GetHashCode\(\)](#)  , [object.GetType\(\)](#)  , [object.MemberwiseClone\(\)](#)  , [object.ReferenceEquals\(object, object\)](#)  , [object.ToString\(\)](#) 

## Constructors

Q16ClarityImageFactory(IMagickFactory<ushort>, ImageDataFactory, ICompressionFactory)

```
public Q16ClarityImageFactory(IMagickFactory<ushort> magickFactory, ImageDataFactory imageDataFactory, ICompressionFactory compressionFactory)
```

## Parameters

**magickFactory** [IMagickFactory<ushort>](#) 

**imageDataFactory** [ImageDataFactory](#)

**compressionFactory** [ICompressionFactory](#)

## Methods

Create(IFileReader, RangeInfo)

```
public IClarityImage? Create(IFileReader fileReader, RangeInfo info)
```

## Parameters

**fileReader** [IFileReader](#)

**info** [RangeInfo](#)

## Returns

[IClarityImage](#)

## Create(ImageData<byte>)

```
public IClarityImage? Create(ImageData<byte> data)
```

## Parameters

**data** [ImageData<byte>](#)

## Returns

[IClarityImage](#)

## Create(ImageData<ushort>)

```
public IClarityImage? Create(ImageData<ushort> data)
```

## Parameters

**data** [ImageData<ushort>](#)

## Returns

[IClarityImage](#)

## Create(byte[], IntensityInfo)

```
public IClarityImage? Create(byte[] data, IntensityInfo info)
```



## Parameters

**data** [byte](#)  []

**info** [IntensityInfo](#)

## Returns

[IClarityImage](#)

# Create(byte[], RangeInfo)

```
public IClarityImage? Create(byte[] data, RangeInfo info)
```

## Parameters

**data** [byte](#)  []

**info** [RangeInfo](#)

## Returns

[IClarityImage](#)