

Smart ID Engine Library Reference

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1 Class Documentation	2
1.1 se::common::BaseException Class Reference	2
1.1.1 Detailed Description	3
1.2 se::common::ByteString Class Reference	3
1.2.1 Detailed Description	4
1.3 se::common::FileSystemException Class Reference	4
1.3.1 Detailed Description	4
1.4 se::common::Image Class Reference	4
1.4.1 Detailed Description	8
1.4.2 Member Function Documentation	8
1.5 se::common::InternalException Class Reference	24
1.5.1 Detailed Description	24
1.6 se::common::InvalidArgumentException Class Reference	24
1.6.1 Detailed Description	25
1.7 se::common::InvalidKeyException Class Reference	25
1.7.1 Detailed Description	25
1.8 se::common::InvalidStateException Class Reference	26
1.8.1 Detailed Description	26
1.9 se::common::MemoryException Class Reference	26
1.9.1 Detailed Description	27
1.10 se::common::MutableString Class Reference	27
1.10.1 Detailed Description	28
1.11 se::common::NotSupportedException Class Reference	28
1.11.1 Detailed Description	28
1.12 se::common::OcrChar Class Reference	29
1.12.1 Detailed Description	30
1.12.2 Constructor & Destructor Documentation	30
1.13 se::common::OcrCharVariant Class Reference	30
1.13.1 Detailed Description	31
1.13.2 Constructor & Destructor Documentation	31
1.14 se::common::OcrPair Class Reference	32
1.14.1 Detailed Description	33
1.14.2 Constructor & Destructor Documentation	33
1.15 se::common::OcrString Class Reference	34
1.15.1 Detailed Description	36
1.15.2 Constructor & Destructor Documentation	36
1.15.3 Member Function Documentation	36
1.16 se::common::Point Class Reference	37
1.16.1 Detailed Description	37
1.17 se::common::Polygon Class Reference	37
1.17.1 Detailed Description	38
1.18 se::common::ProjectiveTransform Class Reference	38

1.18.1 Detailed Description	39
1.18.2 Member Function Documentation	39
1.19 <code>se::common::Quadrangle</code> Class Reference	42
1.19.1 Detailed Description	43
1.20 <code>se::common::QuadranglesMapIterator</code> Class Reference	43
1.20.1 Detailed Description	44
1.21 <code>se::common::QuadranglesVectorIterator</code> Class Reference	44
1.21.1 Detailed Description	45
1.22 <code>se::common::Rectangle</code> Class Reference	45
1.22.1 Detailed Description	46
1.23 <code>se::common::RectanglesVectorIterator</code> Class Reference	46
1.23.1 Detailed Description	46
1.24 <code>se::common::SerializationParameters</code> Class Reference	47
1.24.1 Detailed Description	47
1.24.2 Member Function Documentation	48
1.25 <code>se::common::Serializer</code> Class Reference	49
1.25.1 Detailed Description	50
1.25.2 Member Function Documentation	50
1.26 <code>se::common::Size</code> Class Reference	50
1.26.1 Detailed Description	51
1.27 <code>se::common::StringsMapIterator</code> Class Reference	51
1.27.1 Detailed Description	52
1.28 <code>se::common::StringsSetIterator</code> Class Reference	52
1.28.1 Detailed Description	53
1.29 <code>se::common::StringsVectorIterator</code> Class Reference	53
1.29.1 Detailed Description	54
1.30 <code>se::common::UninitializedObjectException</code> Class Reference	54
1.30.1 Detailed Description	54
1.31 <code>se::common::YUVDimensions</code> Class Reference	55
1.31.1 Detailed Description	55
1.32 <code>se::id::IdAnimatedField</code> Class Reference	55
1.32.1 Detailed Description	56
1.32.2 Constructor & Destructor Documentation	56
1.33 <code>se::id::IdAnimatedFieldsMapIterator</code> Class Reference	57
1.33.1 Detailed Description	58
1.34 <code>se::id::IdBaseFieldInfo</code> Class Reference	58
1.34.1 Detailed Description	59
1.34.2 Constructor & Destructor Documentation	59
1.35 <code>se::id::IdCheckField</code> Class Reference	59
1.35.1 Detailed Description	60
1.35.2 Constructor & Destructor Documentation	60
1.36 <code>se::id::IdCheckFieldsMapIterator</code> Class Reference	60

1.36.1 Detailed Description	61
1.37 <code>se::id::IdDocumentInfo</code> Class Reference	61
1.37.1 Detailed Description	62
1.38 <code>se::id::IdEngine</code> Class Reference	62
1.38.1 Detailed Description	63
1.38.2 Member Function Documentation	63
1.39 <code>se::id::IdFaceFeedback</code> Class Reference	68
1.39.1 Detailed Description	69
1.39.2 Member Function Documentation	69
1.40 <code>se::id::IdFaceLivenessResult</code> Class Reference	69
1.40.1 Detailed Description	70
1.41 <code>se::id::IdFaceRectsResult</code> Class Reference	70
1.41.1 Detailed Description	70
1.42 <code>se::id::IdFaceSession</code> Class Reference	71
1.42.1 Detailed Description	71
1.42.2 Member Function Documentation	71
1.43 <code>se::id::IdFaceSessionSettings</code> Class Reference	74
1.43.1 Detailed Description	75
1.43.2 Member Function Documentation	75
1.44 <code>se::id::IdFaceSimilarityResult</code> Class Reference	76
1.44.1 Detailed Description	76
1.45 <code>se::id::IdFeedback</code> Class Reference	76
1.45.1 Detailed Description	77
1.45.2 Member Function Documentation	77
1.46 <code>se::id::IdFeedbackContainer</code> Class Reference	78
1.46.1 Detailed Description	79
1.47 <code>se::id::IdFieldProcessingSession</code> Class Reference	79
1.47.1 Detailed Description	80
1.48 <code>se::id::IdFieldProcessingSessionSettings</code> Class Reference	80
1.48.1 Detailed Description	81
1.48.2 Member Function Documentation	81
1.49 <code>se::id::IdImageField</code> Class Reference	82
1.49.1 Detailed Description	82
1.49.2 Constructor & Destructor Documentation	82
1.50 <code>se::id::IdImageFieldsMapIterator</code> Class Reference	83
1.50.1 Detailed Description	84
1.51 <code>se::id::IdOsIPad</code> Struct Reference	84
1.51.1 Detailed Description	84
1.52 <code>se::id::IdOsIPadIterator</code> Class Reference	84
1.52.1 Detailed Description	85
1.53 <code>se::id::IdOsIResult</code> Class Reference	85
1.53.1 Detailed Description	86

1.54 <code>se::id::IdResult</code> Class Reference	86
1.54.1 Detailed Description	90
1.55 <code>se::id::IdSession</code> Class Reference	90
1.55.1 Detailed Description	91
1.55.2 Member Function Documentation	91
1.56 <code>se::id::IdSessionSettings</code> Class Reference	92
1.56.1 Detailed Description	95
1.56.2 Member Function Documentation	95
1.57 <code>se::id::IdTemplateDetectionResult</code> Class Reference	96
1.57.1 Detailed Description	97
1.57.2 Constructor & Destructor Documentation	97
1.58 <code>se::id::IdTemplateSegmentationResult</code> Class Reference	97
1.58.1 Detailed Description	98
1.58.2 Constructor & Destructor Documentation	99
1.59 <code>se::id::IdTextField</code> Class Reference	99
1.59.1 Detailed Description	100
1.59.2 Constructor & Destructor Documentation	100
1.60 <code>se::id::IdTextFieldsMapIterator</code> Class Reference	101
1.60.1 Detailed Description	101
2 File Documentation	102
2.1 <code>id_engine.h</code> File Reference	102
2.1.1 Detailed Description	102
2.2 <code>id_engine.h</code>	102
2.3 <code>id_face_feedback.h</code> File Reference	103
2.3.1 Detailed Description	103
2.4 <code>id_face_feedback.h</code>	104
2.5 <code>id_face_result.h</code> File Reference	104
2.5.1 Detailed Description	105
2.6 <code>id_face_result.h</code>	105
2.7 <code>id_face_session.h</code> File Reference	108
2.7.1 Detailed Description	109
2.8 <code>id_face_session.h</code>	109
2.9 <code>id_face_session_settings.h</code> File Reference	109
2.9.1 Detailed Description	110
2.10 <code>id_face_session_settings.h</code>	110
2.11 <code>id_feedback.h</code> File Reference	110
2.11.1 Detailed Description	111
2.12 <code>id_feedback.h</code>	111
2.13 <code>id_field_processing_session.h</code> File Reference	112
2.13.1 Detailed Description	112
2.14 <code>id_field_processing_session.h</code>	112

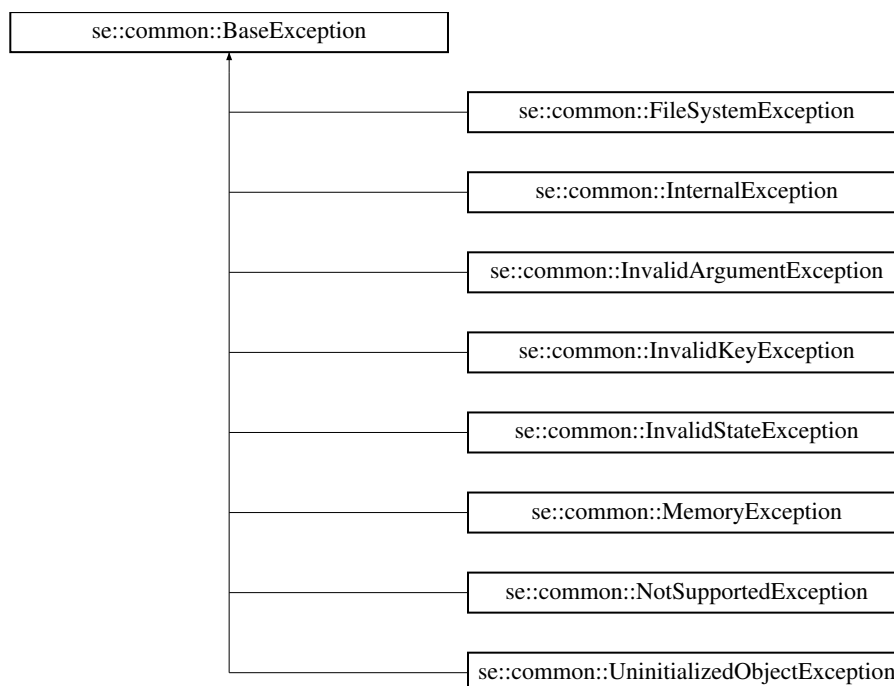
2.15 id_field_processing_session_settings.h File Reference	113
2.15.1 Detailed Description	113
2.16 id_field_processing_session_settings.h	113
2.17 id_fields.h File Reference	114
2.17.1 Detailed Description	115
2.18 id_fields.h	115
2.19 id_result.h File Reference	119
2.19.1 Detailed Description	120
2.20 id_result.h	120
2.21 id_session.h File Reference	124
2.21.1 Detailed Description	124
2.22 id_session.h	125
2.23 id_session_settings.h File Reference	125
2.23.1 Detailed Description	125
2.24 id_session_settings.h	126
2.25 se_common.h File Reference	128
2.25.1 Detailed Description	128
2.26 se_common.h	128
2.27 se_exception.h File Reference	128
2.27.1 Detailed Description	129
2.28 se_exception.h	129
2.29 se_export_defs.h File Reference	130
2.29.1 Detailed Description	130
2.30 se_export_defs.h	130
2.31 se_geometry.h File Reference	131
2.31.1 Detailed Description	131
2.32 se_geometry.h	132
2.33 se_image.h File Reference	135
2.33.1 Detailed Description	135
2.34 se_image.h	136
2.35 se_serialization.h File Reference	138
2.35.1 Detailed Description	139
2.36 se_serialization.h	139
2.37 se_string.h File Reference	140
2.37.1 Detailed Description	140
2.38 se_string.h	140
2.39 se_strings_iterator.h File Reference	144
2.39.1 Detailed Description	144
2.40 se_strings_iterator.h	144

1 Class Documentation

1.1 se::common::BaseException Class Reference

[BaseException](#) class - base class for all SE exeptions. Cannot be created directly.

Inheritance diagram for se::common::BaseException:



Public Member Functions

- virtual `~BaseException()`
Non-trivial dtor.
- `BaseException(const BaseException ©)`
Copy ctor.
- virtual const char * `ExceptionName()` const
Returns exception class name.
- virtual const char * `what()` const
Returns exception message.

Protected Member Functions

- `BaseException(const char *msg)`
Protected ctor.

Private Attributes

- char * `msg_`
stored exception message

1.1.1 Detailed Description

[BaseException](#) class - base class for all SE exeptions. Cannot be created directly.

Definition at line 22 of file [se_exception.h](#).

1.2 se::common::ByteString Class Reference

Class representing byte string.

Public Member Functions

- [ByteString](#) ()
Default ctor, creates an empty string.
- [~ByteString](#) ()
Non-trivial dtor.
- [ByteString](#) (const unsigned char *bytes, size_t n)
Ctor from a given sequence of bytes and length.
- [ByteString](#) (const [ByteString](#) &other)
Copy ctor.
- [ByteString](#) & operator= (const [ByteString](#) &other)
Assignment operator.
- void [swap](#) ([ByteString](#) &other) noexcept
Swap.
- int [GetLength](#) () const noexcept
Returns the number of bytes.
- int [GetRequiredBase64BufferLength](#) () const
Returns length of base64 formatted buffer.
- int [CopyBase64ToBuffer](#) (char *out_buffer, int buffer_length) const
Format buffer to base64.
- [MutableString](#) [GetBase64String](#) () const
Get base64 string from buffer.
- int [GetRequiredHexBufferLength](#) () const
Returns length of hex formatted buffer.
- int [CopyHexToBuffer](#) (char *out_buffer, int buffer_length) const
Format buffer to hex.
- [MutableString](#) [GetHexString](#) () const
Get hex string from buffer.

Private Attributes

- size_t [len_](#)
length of the internal buffer in bytes
- uint8_t * [buf_](#)
internal buffer

1.2.1 Detailed Description

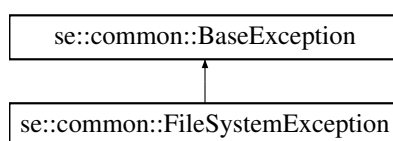
Class representing byte string.

Definition at line 397 of file [se_string.h](#).

1.3 se::common::FileSystemException Class Reference

[FileSystemException](#): thrown if an attempt is made to read from a non-existent file, or other file-system related IO error.

Inheritance diagram for se::common::FileSystemException:



Public Member Functions

- [FileSystemException](#) (const char *msg)
Ctor with an exception message.
- [FileSystemException](#) (const [FileSystemException](#) ©)
Copy ctor.
- virtual [~FileSystemException](#) () override=default
Default dtor.
- virtual const char * [ExceptionName](#) () const override
Returns exception class name.

Additional Inherited Members

1.3.1 Detailed Description

[FileSystemException](#): thrown if an attempt is made to read from a non-existent file, or other file-system related IO error.

Definition at line 92 of file [se_exception.h](#).

1.4 se::common::Image Class Reference

Class representing bitmap image.

Public Member Functions

- virtual `~Image ()`=default
Default dtor.
- virtual int `GetNumberOfLayers ()` const =0
Gets the number of additional layers.
- virtual const `Image & GetLayer` (const char *name) const =0
Gets the additional layer by the specified name.
- virtual const `Image * GetLayerPtr` (const char *name) const =0
Gets the additional layer by the specified name.
- virtual `ImagesMapIterator LayersBegin ()` const =0
Gets the 'begin' map iterator to the internal layers collection.
- virtual `ImagesMapIterator LayersEnd ()` const =0
Gets the 'end' map iterator to the internal layers collection.
- virtual bool `HasLayer` (const char *name) const =0
Checks whether the `Image` contains the layer with the specified name.
- virtual bool `HasLayers ()` const =0
Checks whether the `Image` contains the layers.
- virtual void `RemoveLayer` (const char *name)=0
Removes the layer with the specified name.
- virtual void `RemoveLayers ()`=0
Clears the internal layers collection.
- virtual void `SetLayer` (const char *name, const `Image &image`)=0
Add the image with the specified name to the internal layers collection with copying of the pixels of the given image.
- virtual void `SetLayerWithOwnership` (const char *name, `Image *image`)=0
Add the image with the specified name to the internal layers collection by transferring the given image to the internal layers collection. The caller has to release the ownership of the set image.
- virtual `Image * CloneDeep ()` const =0
Clones an image with copying of all pixels.
- virtual `Image * CloneShallow ()` const =0
Clones an image without copying the pixels. The cloned image will be a separate object without memory ownership, the operations with it will be invalid if the source is deallocated.
- virtual void `Clear ()`=0
Clears the internal image structure.
- virtual int `GetRequiredBufferLength ()` const =0
Gets the required buffer length for copying the image pixels into an external pixels buffer.
- virtual int `CopyToBuffer` (unsigned char *buffer, int buffer_length) const =0
Copies the image pixels.
- virtual void `Save` (const char *image_filename) const =0
Saves the image to an external file (png, jpg, tif). Format is deduced from the filename extension.
- virtual int `GetRequiredBase64BufferLength ()` const =0
Returns required buffer size for Base64 JPEG representation of an image. WARNING: will perform one extra JPEG encoding of an image.
- virtual int `CopyBase64ToBuffer` (char *out_buffer, int buffer_length) const =0
Copies the Base64 JPEG representation of an image to an external buffer.
- virtual `MutableString GetBase64String ()` const =0
Returns Base64 JPEG representation of an image.
- virtual double `EstimateFocusScore` (double quantile=0.95) const =0
Estimates focus score of an image.
- virtual void `Resize` (const `Size &new_size`)=0
Scale the image to a new size.
- virtual `Image * CloneResized` (const `Size &new_size`) const =0

- Clones the image scaled to a new size.*

 - virtual void **Crop** (const **Quadrangle** &quad)=0

Projectively crops a region of image, with approximate selection of the cropped image size.
- virtual **Image** * **CloneCropped** (const **Quadrangle** &quad) const =0

Clones the image projectively cropped with approximate selection of the target image size.
- virtual void **Crop** (const **Quadrangle** &quad, const **Size** &size)=0

Projectively crops a region of image, with a given target size.
- virtual **Image** * **CloneCropped** (const **Quadrangle** &quad, const **Size** &size) const =0

Clones the image projectively cropped with a given target size.
- virtual void **Crop** (const **Rectangle** &rect)=0

Crops an image to a rectangular image region.
- virtual **Image** * **CloneCropped** (const **Rectangle** &rect) const =0

Clones the image cropped to a selected rectangular region (with copying of pixels)
- virtual **Image** * **CloneCroppedShallow** (const **Rectangle** &rect) const =0

Clones the image cropped to a selected rectangular region, without copying of pixels. The cloned image will be a separate object without memory ownership, the operations with it will be invalid if the source is deallocated.
- virtual void **Mask** (const **Rectangle** &rect, int pixel_expand=0, double pixel_density=0)=0

Masks image region specified by rectangle.
- virtual **Image** * **CloneMasked** (const **Rectangle** &rect, int pixel_expand=0) const =0

Clone the image with masked region specified by rectangle.
- virtual void **Mask** (const **Quadrangle** &quad, int pixel_expand=0, double pixel_density=0)=0

Mask image region specified by quadrangle.
- virtual **Image** * **CloneMasked** (const **Quadrangle** &quad, int pixel_expand=0) const =0

Clone the image with masked region specified by quadrangle.
- virtual void **Fill** (const **Rectangle** &rect, int ch1, int ch2=0, int ch3=0, int ch4=0, int pixel_expand=0)=0

Fills image region specified by rectangle and color. The method will use the first as many channel values as there are channels in the image.
- virtual **Image** * **CloneFilled** (const **Rectangle** &rect, int ch1, int ch2=0, int ch3=0, int ch4=0, int pixel_↔ expand=0) const =0

Clone the image with filled region specified by rectangle and color. The method will use the first as many channel values as there are channels in the image.
- virtual void **Fill** (const **Quadrangle** &quad, int ch1, int ch2=0, int ch3=0, int ch4=0, int pixel_expand=0)=0

Fill image region specified by quadrangle and color. The method will use the first as many channel values as there are channels in the image.
- virtual **Image** * **CloneFilled** (const **Quadrangle** &quad, int ch1, int ch2=0, int ch3=0, int ch4=0, int pixel_↔ expand=0) const =0

Clone the image with filled region specified by quadrangle and color. The method will use the first as many channel values as there are channels in the image.
- virtual void **FlipVertical** ()=0

Flips an image around the vertical axis.
- virtual **Image** * **CloneFlippedVertical** () const =0

Clones the image flipped around the vertical axis.
- virtual void **FlipHorizontal** ()=0

Flips an image around the horizontal axis.
- virtual **Image** * **CloneFlippedHorizontal** () const =0

Clones the image flipped around the horizontal axis.
- virtual void **Rotate90** (int times)=0

Rotates the image clockwise by a multiple of 90 degrees.
- virtual **Image** * **CloneRotated90** (int times) const =0

Clones the image rotated clockwise by a multiple of 90 degrees.
- virtual void **AverageChannels** ()=0

Makes a single-channel image with averaged intensity values.

- virtual [Image](#) * [CloneAveragedChannels](#) () const =0
Clones the image with averaged channel intensity values.
- virtual void [Invert](#) ()=0
Inverts the colors of the image.
- virtual [Image](#) * [CloneInverted](#) () const =0
Clones the image with inverted colors.
- virtual int [GetWidth](#) () const =0
Gets the image width in pixels.
- virtual int [GetHeight](#) () const =0
Gets the image height in pixels.
- virtual [Size](#) [GetSize](#) () const =0
Gets the image size in pixels.
- virtual int [GetStride](#) () const =0
Gets the number of image row in bytes, including alignment.
- virtual int [GetChannels](#) () const =0
Gets the number of channels per pixel.
- virtual void * [GetUnsafeBufferPtr](#) () const =0
Gets the pointer to the pixels buffer.
- virtual bool [IsMemoryOwner](#) () const =0
Returns whether this instance owns and will release pixel data.
- virtual void [ForceMemoryOwner](#) ()=0
Forces memory ownership - allocates new image data and copies the pixels.
- virtual void [Serialize](#) ([Serializer](#) &serializer) const =0
Serializes the image given the serializer object.

Static Public Member Functions

- static int [GetNumberOfPages](#) (const char *image_filename)
Returns the number of pages in an image.
- static [MutableString](#) [GetImagePageName](#) (const char *image_filename, int page_number)
Returns the name of the specified page.
- static [Image](#) * [CreateEmpty](#) ()
Factory method for creating an empty image.
- static [Image](#) * [FromFile](#) (const char *image_filename, const int page_number=0, const [Size](#) &max_size=[Size](#)(25000, 25000))
Factory method for loading an image from file. Will be treated as IPF_G or IPF_RGB.
- static [Image](#) * [FromFileBuffer](#) (unsigned char *data, int data_length, const int page_number=0, const [Size](#) &max_size=[Size](#)(25000, 25000))
Factory method for loading an image from file pre-loaded in a buffer Will be treated as IPF_G or IPF_RGB.
- static [Image](#) * [FromBuffer](#) (unsigned char *raw_data, int raw_data_length, int width, int height, int stride, int channels)
Factory method for loading an image from uncompressed pixels buffer, with UINT8 channel container. Copies the buffer internally. Buffers with types IPF_G, IPF_RGB, and IPF_BGRA are assumed.
- static [Image](#) * [FromBufferExtended](#) (unsigned char *raw_data, int raw_data_length, int width, int height, int stride, [ImagePixelFormat](#) pixel_format, int bytes_per_channel)
Factory method for loading an image from an uncompressed pixel buffer with extended settings. Copies the buffer internally.
- static [Image](#) * [FromYUVBuffer](#) (unsigned char *yuv_data, int yuv_data_length, int width, int height)
Factory method for loading an image from YUV NV21 buffer.
- static [Image](#) * [FromYUV](#) (unsigned char *y_plane, int y_plane_length, unsigned char *u_plane, int u_plane_length, unsigned char *v_plane, int v_plane_length, const [YUVDimensions](#) &dimensions)

Factory method for loading an image from a universal YUV buffer.

- static [Image](#) * [FromBase64Buffer](#) (const char *base64_buffer, const int page_number=0, const [Size](#) &max←_size=[Size](#)(25000, 25000))

Factory method for loading an image from file pre-loaded in a buffer encoded as a Base64 string. Will be treated as IPF_G or IPF_RGB.

1.4.1 Detailed Description

Class representing bitmap image.

Definition at line 79 of file [se_image.h](#).

1.4.2 Member Function Documentation

1.4.2.1 GetNumberOfPages() static int [se::common::Image::GetNumberOfPages](#) (
const char * *image_filename*) [static]

Returns the number of pages in an image.

Parameters

<i>image_filename</i>	path to an imag file
-----------------------	----------------------

Returns

the number of pages in an image

1.4.2.2 GetImagePageName() static [MutableString](#) [se::common::Image::GetImagePageName](#) (
const char * *image_filename*,
int *page_number*) [static]

Returns the name of the specified page.

Parameters

<i>image_filename</i>	The filename of the image to process.
<i>page_number</i>	0-based page number.

Returns

Separate page filename.

1.4.2.3 CreateEmpty() `static Image* se::common::Image::CreateEmpty () [static]`

Factory method for creating an empty image.

Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it.

1.4.2.4 FromFile() `static Image* se::common::Image::FromFile (const char * image_filename, const int page_number = 0, const Size & max_size = Size(25000, 25000)) [static]`

Factory method for loading an image from file. Will be treated as IPF_G or IPF_RGB.

Parameters

<i>image_filename</i>	path to an image file (png, jpg, tif)
<i>page_number</i>	page number (0 by default)
<i>max_size</i>	maximum image size in pixels (0 for unrestricted)

Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it.

1.4.2.5 FromFileBuffer() `static Image* se::common::Image::FromFileBuffer (unsigned char * data, int data_length, const int page_number = 0, const Size & max_size = Size(25000, 25000)) [static]`

Factory method for loading an image from file pre-loaded in a buffer Will be treated as IPF_G or IPF_RGB.

Parameters

<i>data</i>	pointer to a loaded file buffer
<i>data_length</i>	size of the loaded file buffer
<i>page_number</i>	page number (0 by default)
<i>max_size</i>	maximum image size in pixels (0 for unrestricted)

Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it.

1.4.2.6 FromBuffer() static `Image* se::common::Image::FromBuffer (`
`unsigned char * raw_data,`
`int raw_data_length,`
`int width,`
`int height,`
`int stride,`
`int channels) [static]`

Factory method for loading an image from uncompressed pixels buffer, with UINT8 channel container. Copies the buffer internally. Buffers with types IPF_G, IPF_RGB, and IPF_BGRA are assumed.

Parameters

<i>raw_data</i>	- pointer to a pixels buffer
<i>raw_data_length</i>	size of the pixels buffer
<i>width</i>	width of the image in pixels
<i>height</i>	height of the image in pixels
<i>stride</i>	size of an image row in bytes (including alignment)
<i>channels</i>	number of channels per-pixel

Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it.

1.4.2.7 FromBufferExtended() static `Image* se::common::Image::FromBufferExtended (`
`unsigned char * raw_data,`
`int raw_data_length,`
`int width,`
`int height,`
`int stride,`
`ImagePixelFormat pixel_format,`
`int bytes_per_channel) [static]`

Factory method for loading an image from an uncompressed pixel buffer with extended settings. Copies the buffer internally.

Parameters

<i>raw_data</i>	pointer to a pixels buffer
<i>raw_data_length</i>	size of the pixels buffer
<i>width</i>	width of the image in pixels
<i>height</i>	height of the image in pixels
<i>stride</i>	size of an image row in bytes (including alignment)
<i>pixel_format</i>	pixel format
<i>bytes_per_channel</i>	size of a pixel component in bytes

Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it.

1.4.2.8 FromYUVBuffer() static `Image*` `se::common::Image::FromYUVBuffer` (
 unsigned char * *yuv_data*,
 int *yuv_data_length*,
 int *width*,
 int *height*) [static]

Factory method for loading an image from YUV NV21 buffer.

Parameters

<i>yuv_data</i>	pointer to YUV NV21 buffer
<i>yuv_data_length</i>	size of the YUV NV21 buffer
<i>width</i>	width of the image in pixels
<i>height</i>	height of the image in pixels

Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it.

1.4.2.9 FromYUV() static `Image*` `se::common::Image::FromYUV` (
 unsigned char * *y_plane*,
 int *y_plane_length*,
 unsigned char * *u_plane*,
 int *u_plane_length*,
 unsigned char * *v_plane*,
 int *v_plane_length*,
 const `YUVDimensions` & *dimensions*) [static]

Factory method for loading an image from a universal YUV buffer.

Parameters

<i>y_plane</i>	pointer to Y plane buffer
<i>y_plane_length</i>	Y plane buffer length
<i>u_plane</i>	pointer to U plane buffer
<i>u_plane_length</i>	U plane buffer length
<i>v_plane</i>	pointer to V plane buffer
<i>v_plane_length</i>	V plane buffer length
<i>dimensions</i>	YUV parameters and dimensions

Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it.

1.4.2.10 FromBase64Buffer() `static Image* se::common::Image::FromBase64Buffer (`
 `const char * base64_buffer,`
 `const int page_number = 0,`
 `const Size & max_size = Size(25000, 25000)) [static]`

Factory method for loading an image from file pre-loaded in a buffer encoded as a Base64 string. Will be treated as IPF_G or IPF_RGB.

Parameters

<i>base64_buffer</i>	pointer to a base64 file buffer
<i>page_number</i>	page number (0 by default)
<i>max_size</i>	maximum image size in pixels (0 for unrestricted)

Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it.

1.4.2.11 GetNumberOfLayers() `virtual int se::common::Image::GetNumberOfLayers () const [pure virtual]`

Gets the number of additional layers.

Returns

The number of layers

1.4.2.12 GetLayer() `virtual const Image& se::common::Image::GetLayer (`
 `const char * name) const [pure virtual]`

Gets the additional layer by the specified name.

Parameters

<i>name</i>	the name of the required layer
-------------	--------------------------------

Returns

The layer

1.4.2.13 GetLayerPtr() `virtual const Image* se::common::Image::GetLayerPtr (`
 `const char * name) const [pure virtual]`

Gets the additional layer by the specified name.

Parameters

<i>name</i>	the name of the required layer
-------------	--------------------------------

Returns

The pointer to the layer

1.4.2.14 LayersBegin() `virtual ImagesMapIterator se::common::Image::LayersBegin () const [pure virtual]`

Gets the 'begin' map iterator to the internal layers collection.

Returns

The 'begin' map iterator to the internal layers collection

1.4.2.15 LayersEnd() `virtual ImagesMapIterator se::common::Image::LayersEnd () const [pure virtual]`

Gets the 'end' map iterator to the internal layers collection.

Returns

The 'end' map iterator to the internal layers collection

1.4.2.16 HasLayer() `virtual bool se::common::Image::HasLayer (const char * name) const [pure virtual]`

Checks whether the [Image](#) contains the layer with the specified name.

Parameters

<i>name</i>	the name of the required layer
-------------	--------------------------------

Returns

whether the [Image](#) contains the layer with the specified name

1.4.2.17 HasLayers() `virtual bool se::common::Image::HasLayers () const [pure virtual]`

Checks whether the [Image](#) contains the layers.

Returns

whether the [Image](#) contains the layers

1.4.2.18 RemoveLayer() `virtual void se::common::Image::RemoveLayer (const char * name) [pure virtual]`

Removes the layer with the specified name.

Parameters

<i>name</i>	the name of the removable layer
-------------	---------------------------------

1.4.2.19 SetLayer() `virtual void se::common::Image::SetLayer (const char * name, const Image & image) [pure virtual]`

Add the image with the specified name to the internal layers collection with copying of the pixels of the given image.

Parameters

<i>name</i>	the name of the new layer
<i>image</i>	the value of the new layer

1.4.2.20 SetLayerWithOwnership() `virtual void se::common::Image::SetLayerWithOwnership (const char * name, Image * image) [pure virtual]`

Add the image with the specified name to the internal layers collection by transferring the given image to the internal layers collection. The caller has to release the ownership of the set image.

Parameters

<i>name</i>	the name of the new layer
<i>image</i>	the pointer to the value of the new layer

1.4.2.21 CloneDeep() `virtual Image* se::common::Image::CloneDeep () const [pure virtual]`

Clones an image with copying of all pixels.

Returns

Pointer to a cloned image. New object is allocated, the caller is responsible for deleting it.

1.4.2.22 CloneShallow() `virtual Image* se::common::Image::CloneShallow () const [pure virtual]`

Clones an image without copying the pixels. The cloned image will be a separate object without memory ownership, the operations with it will be invalid if the source is deallocated.

Returns

Pointer to a cloned image. New object is allocated, the caller is responsible for deleting it.

1.4.2.23 GetRequiredBufferLength() `virtual int se::common::Image::GetRequiredBufferLength () const [pure virtual]`

Gets the required buffer length for copying the image pixels into an external pixels buffer.

Returns

Number of required bytes

1.4.2.24 CopyToBuffer() `virtual int se::common::Image::CopyToBuffer (unsigned char * buffer, int buffer_length) const [pure virtual]`

Copies the image pixels.

Parameters

<i>buffer</i>	pointer to an output pixels buffer
<i>buffer_length</i>	available buffer size. Must be at least the size returned by the GetRequiredBufferLength() method.

Returns

The number of written bytes

1.4.2.25 Save() `virtual void se::common::Image::Save (`
`const char * image_filename) const [pure virtual]`

Saves the image to an external file (png, jpg, tif). Format is deduced from the filename extension.

Parameters

<i>image_filename</i>	filename to save the image
-----------------------	----------------------------

1.4.2.26 GetRequiredBase64BufferLength() `virtual int se::common::Image::GetRequiredBase64↵`
`BufferLength () const [pure virtual]`

Returns required buffer size for Base64 JPEG representation of an image. WARNING: will perform one extra JPEG encoding of an image.

Returns

Buffer size in bytes.

1.4.2.27 CopyBase64ToBuffer() `virtual int se::common::Image::CopyBase64ToBuffer (`
`char * out_buffer,`
`int buffer_length) const [pure virtual]`

Copies the Base64 JPEG representation of an image to an external buffer.

Parameters

<i>out_buffer</i>	output buffer for Base64 JPEG representation
<i>buffer_length</i>	available buffer size. Must be at least the size return by the GetRequiredBase64BufferLength() method.

Returns

The number of written bytes.

1.4.2.28 GetBase64String() `virtual MutableString se::common::Image::GetBase64String () const`
`[pure virtual]`

Returns Base64 JPEG representation of an image.

Returns

Base64 JPEG representation in a [MutableString](#) form

1.4.2.29 EstimateFocusScore() `virtual double se::common::Image::EstimateFocusScore (double quantile = 0.95) const [pure virtual]`

Estimates focus score of an image.

Parameters

<i>quantile</i>	the derivatives quantile used to estimate focus score
-----------------	---

Returns

Focus score of an image

1.4.2.30 Resize() `virtual void se::common::Image::Resize (const Size & new_size) [pure virtual]`

Scale the image to a new size.

Parameters

<i>new_size</i>	new size of the image
-----------------	-----------------------

1.4.2.31 CloneResized() `virtual Image* se::common::Image::CloneResized (const Size & new_size) const [pure virtual]`

Clones the image scaled to a new size.

Parameters

<i>new_size</i>	new size of the image
-----------------	-----------------------

Returns

Pointer to a scaled image. New object is allocated, the caller is responsible for deleting it.

1.4.2.32 Crop() [1/3] `virtual void se::common::Image::Crop (const Quadrangle & quad) [pure virtual]`

Projectively crops a region of image, with approximate selection of the cropped image size.

Parameters

<i>quad</i>	quadrangle in the image for cropping.
-------------	---------------------------------------

1.4.2.33 CloneCropped() [1/3] `virtual Image* se::common::Image::CloneCropped (`
`const Quadrangle & quad) const [pure virtual]`

Clones the image projectively cropped with approximate selection of the target image size.

Parameters

<i>quad</i>	quadrangle in the image for cropping
-------------	--------------------------------------

Returns

Pointer to a cropped image. New object is allocated, the caller is responsible for deleting it.

1.4.2.34 Crop() [2/3] `virtual void se::common::Image::Crop (`
`const Quadrangle & quad,`
`const Size & size) [pure virtual]`

Projectively crops a region of image, with a given target size.

Parameters

<i>quad</i>	quadrangle in the image for cropping
<i>size</i>	target cropped image size

1.4.2.35 CloneCropped() [2/3] `virtual Image* se::common::Image::CloneCropped (`
`const Quadrangle & quad,`
`const Size & size) const [pure virtual]`

Clones the image projectively cropped with a given target size.

Parameters

<i>quad</i>	quadrangle in the image for cropping
<i>size</i>	target cropped image size

Returns

Pointer to a cropped image. New object is allocated, the caller is responsible for deleting it.

1.4.2.36 Crop() [3/3] `virtual void se::common::Image::Crop (`
`const Rectangle & rect) [pure virtual]`

Crops an image to a rectangular image region.

Parameters

<i>rect</i>	rectangular region to crop
-------------	----------------------------

1.4.2.37 CloneCropped() [3/3] `virtual Image* se::common::Image::CloneCropped (`
`const Rectangle & rect) const [pure virtual]`

Clones the image cropped to a selected rectangular region (with copying of pixels)

Parameters

<i>rect</i>	rectangular region to crop
-------------	----------------------------

Returns

Pointer to a cropped image. New object is allocated, the caller is responsible for deleting it.

1.4.2.38 CloneCroppedShallow() `virtual Image* se::common::Image::CloneCroppedShallow (`
`const Rectangle & rect) const [pure virtual]`

Clones the image cropped to a selected rectangular region, without copying of pixels. The cloned image will be a separate object without memory ownership, the operations with it will be invalid if the source is deallocated.

Parameters

<i>rect</i>	rectangular region to crop
-------------	----------------------------

Returns

Pointer to a cropped image. New object is allocated, the caller is responsible for deleting it.

1.4.2.39 Mask() [1/2] `virtual void se::common::Image::Mask (`
`const Rectangle & rect,`
`int pixel_expand = 0,`
`double pixel_density = 0) [pure virtual]`

Masks image region specified by rectangle.

Parameters

<i>rect</i>	rectangle region to mask
<i>pixel_expand</i>	expand offset in pixels for each point (0 by default)
<i>pixel_density</i>	reduce dencity of pixels (0 by default)

1.4.2.40 CloneMasked() [1/2] `virtual Image* se::common::Image::CloneMasked (`
`const Rectangle & rect,`
`int pixel_expand = 0) const [pure virtual]`

Clone the image with masked region specified by rectangle.

Parameters

<i>rect</i>	rectangle region to mask
<i>pixel_expand</i>	expand offset in pixels for each point (0 by default)

Returns

Pointer to a masked image. New object is allocated, the caller is responsible for deleting it.

1.4.2.41 Mask() [2/2] `virtual void se::common::Image::Mask (`
`const Quadrangle & quad,`
`int pixel_expand = 0,`
`double pixel_density = 0) [pure virtual]`

Mask image region specified by quadrangle.

Parameters

<i>quad</i>	quadrangle region to mask
<i>pixel_expand</i>	expand offset in pixels for each point (0 by default)

1.4.2.42 CloneMasked() [2/2] `virtual Image* se::common::Image::CloneMasked (`
`const Quadrangle & quad,`
`int pixel_expand = 0) const [pure virtual]`

Clone the image with masked region specified by quadrangle.

Parameters

<i>quad</i>	quadrangle region to mask
<i>pixel_expand</i>	expand offset in pixels for each point (0 by default)
<i>pixel_density</i>	reduce dencity of pixels (0 by default)

Returns

Pointer to a masked image. New object is allocated, the caller is responsible for deleting it.

1.4.2.43 Fill() [1/2] `virtual void se::common::Image::Fill (`
`const Rectangle & rect,`
`int ch1,`
`int ch2 = 0,`
`int ch3 = 0,`
`int ch4 = 0,`
`int pixel_expand = 0) [pure virtual]`

Fills image region specified by rectangle and color. The method will use the first as many channel values as there are channels in the image.

Parameters

<i>rect</i>	rectangle region to fill
<i>ch1</i>	1-st channel value
<i>ch2</i>	2-nd channel value
<i>ch3</i>	3-rd channel value
<i>ch4</i>	4-th channel value
<i>pixel_expand</i>	expand offset in pixels for each point (0 by default)

1.4.2.44 CloneFilled() [1/2] `virtual Image* se::common::Image::CloneFilled (`
`const Rectangle & rect,`
`int ch1,`
`int ch2 = 0,`
`int ch3 = 0,`
`int ch4 = 0,`
`int pixel_expand = 0) const [pure virtual]`

Clone the image with filled region specified by rectangle and color. The method will use the first as many channel values as there are channels in the image.

Parameters

<i>rect</i>	rectangle region to fill
<i>ch1</i>	1-st channel value
<i>ch2</i>	2-nd channel value
<i>ch3</i>	3-rd channel value
<i>ch4</i>	4-th channel value
<i>pixel_expand</i>	expand offset in pixels for each point (0 by default)

Returns

Pointer to a filled image. New object is allocated, the caller is responsible for deleting it.

```

1.4.2.45 Fill() [2/2] virtual void se::common::Image::Fill (
    const Quadrangle & quad,
    int ch1,
    int ch2 = 0,
    int ch3 = 0,
    int ch4 = 0,
    int pixel_expand = 0 ) [pure virtual]

```

Fill image region specified by quadrangle and color. The method will use the first as many channel values as there are channels in the image.

Parameters

<i>quad</i>	quadrangle region to fill
<i>ch1</i>	1-st channel value
<i>ch2</i>	2-nd channel value
<i>ch3</i>	3-rd channel value
<i>ch4</i>	4-th channel value
<i>pixel_expand</i>	expand offset in pixels for each point (0 by default)

```

1.4.2.46 CloneFilled() [2/2] virtual Image\* se::common::Image::CloneFilled (
    const Quadrangle & quad,
    int ch1,
    int ch2 = 0,
    int ch3 = 0,
    int ch4 = 0,
    int pixel_expand = 0 ) const [pure virtual]

```

Clone the image with filled region specified by quadrangle and color. The method will use the first as many channel values as there are channels in the image.

Parameters

<i>quad</i>	quadrangle region to fill
<i>ch1</i>	1-st channel value
<i>ch2</i>	2-nd channel value
<i>ch3</i>	3-rd channel value
<i>ch4</i>	4-th channel value
<i>pixel_expand</i>	expand offset in pixels for each point (0 by default)

Returns

Pointer to a filled image. New object is allocated, the caller is responsible for deleting it.

```

1.4.2.47 CloneFlippedVertical() virtual Image\* se::common::Image::CloneFlippedVertical ( ) const
[pure virtual]

```

Clones the image flipped around the vertical axis.

Returns

Pointer to a flipped image. New object is allocated, the caller is responsible for deleting it.

1.4.2.48 CloneFlippedHorizontal() virtual `Image*` `se::common::Image::CloneFlippedHorizontal ()`
const [pure virtual]

Clones the image flipped around the horizontal axis.

Returns

Pointer to a flipped image. New object is allocated, the caller is responsible for deleting it.

1.4.2.49 Rotate90() virtual void `se::common::Image::Rotate90 (`
`int times)` [pure virtual]

Rotates the image clockwise by a multiple of 90 degrees.

Parameters

<i>times</i>	the number of times to rotate
--------------	-------------------------------

1.4.2.50 CloneRotated90() virtual `Image*` `se::common::Image::CloneRotated90 (`
`int times)` const [pure virtual]

Clones the image rotated clockwise by a multiple of 90 degrees.

Parameters

<i>times</i>	the number of times to rotate
--------------	-------------------------------

Returns

Pointer to a rotated image. New object is allocated, the caller is responsible for deleting it.

1.4.2.51 CloneAveragedChannels() virtual `Image*` `se::common::Image::CloneAveragedChannels ()`
const [pure virtual]

Clones the image with averaged channel intensity values.

Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it.

1.4.2.52 CloneInverted() `virtual Image* se::common::Image::CloneInverted () const [pure virtual]`

Clones the image with inverted colos.

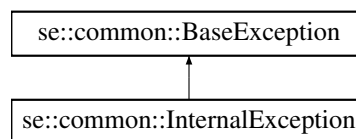
Returns

Pointer to a created image. New object is allocated, the caller is responsible for deleting it

1.5 se::common::InternalException Class Reference

[InternalException](#): thrown if an unknown error occurs or if the error occurs within internal system components.

Inheritance diagram for se::common::InternalException:



Public Member Functions

- [InternalException](#) (const char *msg)
Ctor with an exception message.
- [InternalException](#) (const [InternalException](#) ©)
Copy ctor.
- virtual [~InternalException](#) () override=default
Default dtor.
- virtual const char * [ExceptionName](#) () const override
Returns exception class name.

Additional Inherited Members

1.5.1 Detailed Description

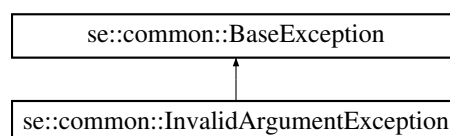
[InternalException](#): thrown if an unknown error occurs or if the error occurs within internal system components.

Definition at line 192 of file [se_exception.h](#).

1.6 se::common::InvalidArgumentException Class Reference

[InvalidArgumentException](#): thrown if a method is called with invalid input parameters.

Inheritance diagram for se::common::InvalidArgumentException:



Public Member Functions

- [InvalidArgumentException](#) (const char *msg)
Ctor with an exception message.
- [InvalidArgumentException](#) (const [InvalidArgumentException](#) ©)
Copy ctor.
- virtual [~InvalidArgumentException](#) () override=default
Default dtor.
- virtual const char * [ExceptionName](#) () const override
Returns exception class name.

Additional Inherited Members

1.6.1 Detailed Description

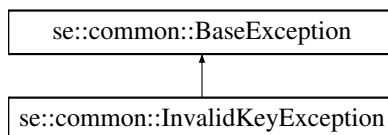
[InvalidArgumentException](#): thrown if a method is called with invalid input parameters.

Definition at line 132 of file [se_exception.h](#).

1.7 se::common::InvalidKeyException Class Reference

[InvalidKeyException](#): thrown if to an associative container the access is performed with an invalid or a non-existent key, or if the access to a list is performed with an invalid or out-of-range index.

Inheritance diagram for `se::common::InvalidKeyException`:



Public Member Functions

- [InvalidKeyException](#) (const char *msg)
Ctor with an exception message.
- [InvalidKeyException](#) (const [InvalidKeyException](#) ©)
Copy ctor.
- virtual [~InvalidKeyException](#) () override=default
Default dtor.
- virtual const char * [ExceptionName](#) () const override
Returns exception class name.

Additional Inherited Members

1.7.1 Detailed Description

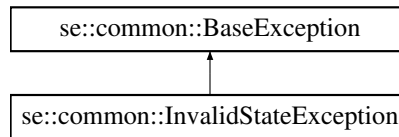
[InvalidKeyException](#): thrown if to an associative container the access is performed with an invalid or a non-existent key, or if the access to a list is performed with an invalid or out-of-range index.

Definition at line 50 of file [se_exception.h](#).

1.8 `se::common::InvalidStateException` Class Reference

[`InvalidStateException`](#): thrown if an error occurs within the system in relation to an incorrect internal state of the system objects.

Inheritance diagram for `se::common::InvalidStateException`:



Public Member Functions

- [`InvalidStateException`](#) (const char *msg)
Ctor with an exception message.
- [`InvalidStateException`](#) (const [`InvalidStateException`](#) ©)
Copy ctor.
- virtual [`~InvalidStateException`](#) () override=default
Default dtor.
- virtual const char * [`ExceptionName`](#) () const override
Returns exception class name.

Additional Inherited Members

1.8.1 Detailed Description

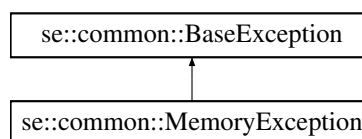
[`InvalidStateException`](#): thrown if an error occurs within the system in relation to an incorrect internal state of the system objects.

Definition at line 172 of file [se_exception.h](#).

1.9 `se::common::MemoryException` Class Reference

[`MemoryException`](#): thrown if an allocation is attempted with insufficient RAM.

Inheritance diagram for `se::common::MemoryException`:



Public Member Functions

- [MemoryException](#) (const char *msg)
Ctor with an exception message.
- [MemoryException](#) (const [MemoryException](#) ©)
Copy ctor.
- virtual [~MemoryException](#) () override=default
Default dtor.
- virtual const char * [ExceptionName](#) () const override
Returns exception class name.

Additional Inherited Members

1.9.1 Detailed Description

[MemoryException](#): thrown if an allocation is attempted with insufficient RAM.

Definition at line 152 of file [se_exception.h](#).

1.10 se::common::MutableString Class Reference

Class representing a mutable, memory-owner string.

Public Member Functions

- [MutableString](#) ()
Default ctor, creates an empty string.
- [MutableString](#) (const char *c_str)
Ctor from a C-string.
- [MutableString](#) (const [MutableString](#) &other)
Copy ctor.
- [MutableString](#) & [operator=](#) (const [MutableString](#) &other)
Assignment operator.
- [~MutableString](#) ()
Non-trivial dtor.
- [MutableString](#) & [operator+=](#) (const [MutableString](#) &other)
Appends a string to this instance.
- [MutableString](#) [operator+](#) (const [MutableString](#) &other) const
Creates a concatenation of this instance and the other string.
- const char * [GetCStr](#) () const
Returns an internal C-string.
- int [GetLength](#) () const
Returns the length of the string. WARNING: returns the number of bytes, not the number of UTF-8 characters.
- void [Serialize](#) ([Serializer](#) &serializer) const
Serializes the string given a serializer object.
- void [SerializeImpl](#) ([SerializerImplBase](#) &serializer_impl) const
Internal serialization implementation.

Private Attributes

- int [len_](#)
length of the internal string in bytes
- char * [buf_](#)
internal C-string

1.10.1 Detailed Description

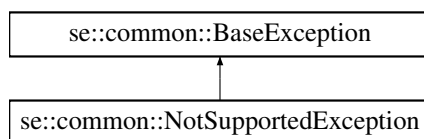
Class representing a mutable, memory-owner string.

Definition at line 25 of file [se_string.h](#).

1.11 [se::common::NotSupportedException](#) Class Reference

[NotSupportedException](#): thrown when trying to access a method which given the current state or given the passed arguments is not supported in the current version of the library or is not supported at all by design.

Inheritance diagram for [se::common::NotSupportedException](#):



Public Member Functions

- [NotSupportedException](#) (const char *msg)
Ctor with an exception message.
- [NotSupportedException](#) (const [NotSupportedException](#) ©)
Copy ctor.
- virtual [~NotSupportedException](#) () override=default
Default dtor.
- virtual const char * [ExceptionName](#) () const override
Returns exception class name.

Additional Inherited Members

1.11.1 Detailed Description

[NotSupportedException](#): thrown when trying to access a method which given the current state or given the passed arguments is not supported in the current version of the library or is not supported at all by design.

Definition at line 72 of file [se_exception.h](#).

1.12 se::common::OcrChar Class Reference

Class representing an OCR information for a given recognized character.

Public Member Functions

- [OcrChar](#) ()
Default ctor, creates an empty recognized character.
- [OcrChar](#) (const [OcrCharVariant](#) *variants, int variants_count, bool is_highlighted, const [Quadrangle](#) &quad)
Main ctor from an array of variants.
- [OcrChar](#) (const [OcrChar](#) &other)
Copy ctor.
- [OcrChar](#) & [operator=](#) (const [OcrChar](#) &other)
Assignment operator.
- [~OcrChar](#) ()
Non-trivial dtor.
- int [GetVariantsCount](#) () const
Gets the number of variants.
- const [OcrCharVariant](#) * [GetVariants](#) () const
Gets the pointer to the variants array.
- [OcrCharVariant](#) & [operator\[\]](#) (int index)
Returns the variant by its index (mutable ref)
- const [OcrCharVariant](#) & [operator\[\]](#) (int index) const
Returns the variant by its index (const ref)
- const [OcrCharVariant](#) & [GetVariant](#) (int index) const
Returns the variant by its index (const ref)
- [OcrCharVariant](#) & [GetMutableVariant](#) (int index)
Returns the variant by its index (mutable ref)
- void [SetVariant](#) (int index, const [OcrCharVariant](#) &v)
Sets the variant to an array with a given index.
- void [Resize](#) (int size)
Resizes the variants array to a given size.
- bool [GetIsHighlighted](#) () const
Returns the value of the highlight flag.
- void [SetIsHighlighted](#) (bool is_highlighted)
Sets the value of the highlight flag.
- const [Quadrangle](#) & [GetQuadrangle](#) () const
Returns the quadrangle of the [OcrChar](#) (const ref)
- [Quadrangle](#) & [GetMutableQuadrangle](#) ()
Returns the quadrangle of the [OcrChar](#) (mutable ref)
- void [SetQuadrangle](#) (const [Quadrangle](#) &quad)
Sets the quadrangle of the [OcrChar](#).
- void [SortVariants](#) ()
Sorts the variants array in the descending order of confidence values.
- const [OcrCharVariant](#) & [GetFirstVariant](#) () const
Gets the first variant of the array (const ref)
- void [Serialize](#) ([Serializer](#) &serializer) const
Serializes the object given serializer.
- void [SerializeImpl](#) ([SerializerImplBase](#) &serializer_impl) const
Internal serialization implementation.

Private Attributes

- int `vars_cnt_`
number of variants
- `OcrCharVariant` * `vars_`
variants array
- bool `is_highlighted_`
highlight flag
- `Quadrangle` `quad_`
`OcrChar` quadrangle.

1.12.1 Detailed Description

Class representing an OCR information for a given recognized character.

Definition at line 196 of file `se_string.h`.

1.12.2 Constructor & Destructor Documentation

1.12.2.1 `OcrChar()` `se::common::OcrChar::OcrChar (`
`const OcrCharVariant * variants,`
`int variants_count,`
`bool is_highlighted,`
`const Quadrangle & quad)`

Main ctor from an array of variants.

Parameters

<i><code>variants</code></i>	pointer to an array of variants
<i><code>variants_count</code></i>	the number of variants in the array
<i><code>is_highlighted</code></i>	highlight flag for the <code>OcrChar</code>
<i><code>quad</code></i>	quadrangle of the <code>OcrChar</code>

1.13 `se::common::OcrCharVariant` Class Reference

Class representing a possible character recognition result.

Public Member Functions

- `OcrCharVariant` ()
Default ctor, creates an empty variant with zero confidence.
- `OcrCharVariant` (const `MutableString` &utf8_char, float confidence)
Ctor from utf8-char represented as a mutable string.

- [OcrCharVariant](#) (const char *utf8_char, float confidence)
Ctor from utf8-char represented as a C-string.
- [~OcrCharVariant](#) ()=default
Default dtor.
- const char * [GetCharacter](#) () const
Gets the character as a C-string.
- void [SetCharacter](#) (const [MutableString](#) &utf8_char)
Sets a character given a [MutableString](#).
- void [SetCharacter](#) (const char *utf8_char)
Sets a character given a C-string.
- float [GetConfidence](#) () const
Gets the confidence value.
- void [SetConfidence](#) (float confidence)
Sets the confidence value (must be in range [0, 1])
- float [GetInternalScore](#) () const
Returns the internal score of the [OcrCharVariant](#).
- void [SetInternalScore](#) (float internal_score)
Sets the internal score of the [OcrCharVariant](#).
- void [Serialize](#) (Serializer &serializer) const
Serializes the object given a serializer.
- void [SerializeImpl](#) (SerializerImplBase &serializer_impl) const
Internal serialization implementation.

Private Attributes

- [MutableString](#) char_
character recognition result representation
- float [conf](#)_
confidence value
- float [internal_score](#)_
internal score

1.13.1 Detailed Description

Class representing a possible character recognition result.

Definition at line 70 of file [se_string.h](#).

1.13.2 Constructor & Destructor Documentation

1.13.2.1 OcrCharVariant() [1/2] `se::common::OcrCharVariant::OcrCharVariant (const MutableString & utf8_char, float confidence)`

Ctor from utf8-char represented as a mutable string.

Parameters

<i>utf8_char</i>	utf8-character represented as a mutable string
<i>confidence</i>	float confidence in range [0, 1]

1.13.2.2 OcrCharVariant() [2/2] `se::common::OcrCharVariant::OcrCharVariant (`
`const char * utf8_char,`
`float confidence)`

Ctor from utf8-char represented as a C-string.

Parameters

<i>utf8_char</i>	utf8-character represented as a C-string
<i>confidence</i>	float confidence in range [0, 1]

1.14 se::common::OcrPair Class Reference

Public Member Functions

- [OcrPair](#) ()
Default ctor, creates an empty variant with zero confidence.
- [OcrPair](#) (const [MutableString](#) &utf8_char, float confidence)
Ctor from utf8-char represented as a mutable string.
- [OcrPair](#) (const char *utf8_char, float confidence)
Ctor from utf8-char represented as a C-string.
- [OcrPair](#) (const [MutableString](#) &utf8_char, int confidence)
Ctor from utf8-char represented as a mutable string.
- [OcrPair](#) (const char *utf8_char, int confidence)
Ctor from utf8-char represented as a C-string.
- [~OcrPair](#) ()=default
Default dtor.
- const char * [GetCharacter](#) () const
Gets the character as a C-string.
- void [SetCharacter](#) (const [MutableString](#) &utf8_char)
Sets a character given a [MutableString](#).
- void [SetCharacter](#) (const char *utf8_char)
Sets a character given a C-string.
- unsigned char [GetConfidence](#) () const
Gets the confidence value.
- void [SetConfidence](#) (float confidence)
Sets the confidence float value must be in range [0, 1].
- void [SetConfidence](#) (int confidence)
Sets the confidence int value must be in range [0, 255].
- void [Serialize](#) ([Serializer](#) &serializer) const
Serializes the object given a serializer.
- void [SerializeImpl](#) ([SerializerImplBase](#) &serializer_impl) const
Internal serialization implementation.

Private Attributes

- [MutableString](#) `char_`
character recognition result representation
- unsigned char [conf_](#)
confidence value

1.14.1 Detailed Description

Definition at line 127 of file [se_string.h](#).

1.14.2 Constructor & Destructor Documentation

1.14.2.1 OcrPair() [1/4] `se::common::OcrPair::OcrPair (`
 const [MutableString](#) & *utf8_char*,
 float *confidence*)

Ctor from utf8-char represented as a mutable string.

Parameters

<i>utf8_char</i>	utf8-character represented as a mutable string
<i>confidence</i>	float confidence in range [0, 1], converted to [0, 255]

1.14.2.2 OcrPair() [2/4] `se::common::OcrPair::OcrPair (`
 const char * *utf8_char*,
 float *confidence*)

Ctor from utf8-char represented as a C-string.

Parameters

<i>utf8_char</i>	utf8-character represented as a C-string
<i>confidence</i>	float confidence in range [0, 1], converted to [0, 255]

1.14.2.3 OcrPair() [3/4] `se::common::OcrPair::OcrPair (`
 const [MutableString](#) & *utf8_char*,
 int *confidence*)

Ctor from utf8-char represented as a mutable string.

Parameters

<i>utf8_char</i>	utf8-character represented as a mutable string
<i>confidence</i>	int confidence in range [0, 255]

1.14.2.4 OcrPair() [4/4] `se::common::OcrPair::OcrPair (`
`const char * utf8_char,`
`int confidence)`

Ctor from utf8-char represented as a C-string.

Parameters

<i>utf8_char</i>	utf8-character represented as a C-string
<i>confidence</i>	int confidence in range [0, 255]

1.15 se::common::OcrString Class Reference

Class representing text string recognition result.

Public Member Functions

- [OcrString](#) ()
Default ctor.
- [OcrString](#) (const char *utf8_str)
Ctor from utf8 C-string. Splits the utf8-string into utf8-characters and creates an [OcrChar](#) for each one.
- [OcrString](#) (const [OcrChar](#) *chars, int chars_count)
Ctor from an array of characters.
- [OcrString](#) (const [OcrString](#) &other)
Copy ctor.
- [OcrString](#) & [operator=](#) (const [OcrString](#) &other)
Assignment operator.
- [~OcrString](#) ()
Non-trivial destructor.
- const class OcrStringImpl * [GetOcrStringImplPtr](#) () const
Gets the ptr to the OcrStringImpl class (const ptr)
- int [GetCharsCount](#) () const
Gets the number of characters.
- const [OcrChar](#) * [GetChars](#) () const
Gets the pointer to the characters array.
- [OcrChar](#) & [operator\[\]](#) (int index)
Gets a character by index (mutable ref)
- const [OcrChar](#) & [operator\[\]](#) (int index) const
Gets a character by index (const ref)
- const [OcrChar](#) & [GetChar](#) (int index) const

- Gets a character by index (const ref)*
- `OcrChar & GetMutableChar` (int index)
 - Gets a character by index (mutable ref)*
- void `SetChar` (int index, const `OcrChar` &chr)
 - Sets a character by index.*
- void `AppendChar` (const `OcrChar` &chr)
 - Appends a character.*
- void `AppendString` (const `OcrString` &str)
 - Appends a string.*
- void `Resize` (int size)
 - Resizes the internal array of characters.*
- const `Quadrangle GetQuadrangleByIndex` (int idx) const
 - Returns the quadrangle of the `OcrChar`.*
- bool `GetAcceptFlag` () const
 - Returns accept flag of `OcrString`.*
- bool `GetCellAcceptFlagByIndex` (int idx) const
 - Returns accept flag of `OcrChar` at given idx.*
- float `GetBestVariantConfidenceByIndex` (int idx) const
 - Returns the confidence of the best `OcrCharVariant`.*
- void `SortVariants` ()
 - Sorts the variants in each character by the descending order of confidence.*
- `MutableString GetFirstString` () const
 - Returns a string composed of the best variants from each `OcrChar`.*
- void `UnpackChars` ()
 - Unpack `se::common::OcrChars` from `se::common::OcrString`.*
- void `RepackChars` ()
 - Repack `se::common::OcrChars` to `se::common::OcrString`.*
- void `Serialize` (`Serializer` &serializer) const
 - Serializes the object given serializer.*
- void `SerializeImpl` (`SerializerImplBase` &serializer_impl) const
 - Internal serialization implementation.*
- `OcrPair * GetPairTable` ()
 - Returns top-8 `OcrPairs` per cell with 8-bit (0–255) confidences.*

Static Public Member Functions

- static `OcrString ConstructFromImpl` (const class `OcrStringImpl` &ocr_string_impl)
 - Ctor from a ptr to `OcrStringImpl` class.*

Private Member Functions

- `OcrString` (const `OcrStringImpl` &ocr_string_impl)
 - Private ctor from an internal implementation structure.*

Private Attributes

- `OcrStringImpl * ocr_string_impl_`

1.15.1 Detailed Description

Class representing text string recognition result.

Definition at line 287 of file [se_string.h](#).

1.15.2 Constructor & Destructor Documentation

1.15.2.1 OcrString() [1/2] `se::common::OcrString::OcrString (`
`const char * utf8_str)`

Ctor from utf8 C-string. Splits the utf8-string into utf8-characters and creates an [OcrChar](#) for each one.

Parameters

<i>utf8_str</i>	input utf8 C-string
-----------------	---------------------

1.15.2.2 OcrString() [2/2] `se::common::OcrString::OcrString (`
`const OcrChar * chars,`
`int chars_count)`

Ctor from an array of characters.

Parameters

<i>chars</i>	array of OcrChars
<i>chars_count</i>	the number of characters

1.15.3 Member Function Documentation

1.15.3.1 ConstructFromImpl() `static OcrString se::common::OcrString::ConstructFromImpl (`
`const class OcrStringImpl & ocr_string_impl) [static]`

Ctor from a ptr to OcrStringImpl class.

Parameters

<i>ocr_string_impl</i>	ptr to OcrStringImpl class
------------------------	----------------------------

1.16 se::common::Point Class Reference

Class representing a point in an image.

Public Member Functions

- [Point](#) ()
Default ctor - initializes a point with zero-valued coordinates.
- [Point](#) (double [x](#), double [y](#))
Main ctor - initializes both coordinates.
- void [Serialize](#) ([Serializer](#) &serializer) const
Serialize point given serializer object.
- void [SerializeImpl](#) ([SerializerImplBase](#) &serializer_impl) const
Internal serialization implementation.

Public Attributes

- double [x](#)
X-coordinate of the point (in pixels)
- double [y](#)
Y-coordinate of the point (in pixels)

1.16.1 Detailed Description

Class representing a point in an image.

Definition at line 47 of file [se_geometry.h](#).

1.17 se::common::Polygon Class Reference

Class representing a polygon in an image.

Public Member Functions

- [Polygon](#) ()
Default ctor - initializes a polygon with no points.
- [Polygon](#) (const [Point](#) *points, int points_count)
Main ctor - initializes a polygon with points array (points are copied)
- [Polygon](#) (const [Polygon](#) &other)
Copy ctor - copies all points of the other polygon.
- [Polygon](#) & [operator=](#) (const [Polygon](#) &other)
Assignment operator - copies all points of the other polygon.
- [~Polygon](#) ()
Dtor (non-trivial)
- int [GetPointsCount](#) () const
Returns the number of points in the polygon.
- const [Point](#) * [GetPoints](#) () const

- Returns a pointer to the first point in the polygon.*
 - [Point](#) & [operator\[\]](#) (int index)
 - Mutable subscript getter for a point by an index.*
 - const [Point](#) & [operator\[\]](#) (int index) const
 - Subscript getter for a point by an index.*
 - const [Point](#) & [GetPoint](#) (int index) const
 - Getter for a point by an index.*
 - [Point](#) & [GetMutablePoint](#) (int index)
 - Mutable getter for a point by an index.*
 - void [SetPoint](#) (int index, const [Point](#) &p)
 - Setter for a point by an index.*
 - void [Resize](#) (int size)
 - Resizes in internal array of points. If size is different from the current size, the new array is allocated. Old points are copied, new points are initialized with zero coordinates (if upsized)*
 - [Rectangle](#) [GetBoundingRectangle](#) () const
 - Calculates, creates, and returns a bounding rectangle for the polygon.*
 - void [Serialize](#) ([Serializer](#) &serializer) const
 - Serialize quadrangle given serializer object.*
 - void [SerializeImpl](#) ([SerializerImplBase](#) &serializer_impl) const
 - Internal serialization implementation.*

Private Attributes

- int [pts_cnt_](#)
 - Number of points.*
- [Point](#) * [pts_](#)
 - Points array.*

1.17.1 Detailed Description

Class representing a polygon in an image.

Definition at line 274 of file [se_geometry.h](#).

1.18 [se::common::ProjectiveTransform](#) Class Reference

Class representing projective transformation of a plane.

Public Types

- using [Raw2dArrayType](#) = double[3][3]
 - type declaration for internal matrix*

Public Member Functions

- virtual `~ProjectiveTransform()`=default
Default dtor.
- virtual `ProjectiveTransform * Clone()` const =0
Copies transform object.
- virtual `Point TransformPoint` (const `Point` &p) const =0
Transforms an input point.
- virtual `Quadrangle TransformQuad` (const `Quadrangle` &q) const =0
Transforms an input quadrangle.
- virtual `Polygon TransformPolygon` (const `Polygon` &poly) const =0
Transforms an input polygon.
- virtual bool `IsInvertible()` const =0
Returns true iff the transformation is invertible.
- virtual void `Invert()`=0
Inverts the projective transformation.
- virtual `ProjectiveTransform * CloneInverted()` const =0
Creates a new object with an inverted transformation.
- virtual const `Raw2dArrayType` & `GetRawCoeffs()` const =0
Returns internal transformation matrix (constant)
- virtual `Raw2dArrayType` & `GetMutableRawCoeffs()` =0
Returns internal transformation matrix (mutable)
- virtual void `Serialize` (`Serializer` &serializer) const =0
Serializes the projective transformation given serializer object.

Static Public Member Functions

- static bool `CanCreate` (const `Quadrangle` &src_quad, const `Quadrangle` &dst_quad)
Returns true, iff the projective transform can be defined which transforms the quad 'src_quad' to the quad 'dst_quad'.
- static bool `CanCreate` (const `Quadrangle` &src_quad, const `Size` &dst_size)
Returns true, iff the projective transform can be defined which transforms the quad 'src_quad' to an orthotropic rectangle with size 'dst_size'.
- static `ProjectiveTransform * Create()`
Creates a unit transformation.
- static `ProjectiveTransform * Create` (const `Quadrangle` &src_quad, const `Quadrangle` &dst_quad)
Creates a transformation which transforms the quad 'src_quad' to the quad 'dst_quad'.
- static `ProjectiveTransform * Create` (const `Quadrangle` &src_quad, const `Size` &dst_size)
Create a transformation which transforms the quad 'src_quad' to an orthotropic rectangle with size 'dst_size'.
- static `ProjectiveTransform * Create` (const `Raw2dArrayType` &coeffs)
Creates a transformation given raw matrix.

1.18.1 Detailed Description

Class representing projective transformation of a plane.

Definition at line 335 of file [se_geometry.h](#).

1.18.2 Member Function Documentation

1.18.2.1 CanCreate() [1/2] `static bool se::common::ProjectiveTransform::CanCreate (`
 `const Quadrangle & src_quad,`
 `const Quadrangle & dst_quad) [static]`

Returns true, iff the projective transform can be defined which transforms the quad 'src_quad' to the quad 'dst_quad'.

Parameters

<i>src_quad</i>	transformation source
<i>dst_quad</i>	transformation destination

Returns

true iff such transform can be defined and constructed

1.18.2.2 CanCreate() [2/2] static bool se::common::ProjectiveTransform::CanCreate (
const [Quadrangle](#) & *src_quad*,
const [Size](#) & *dst_size*) [static]

Returns true, iff the projective transform can be defined which transforms the quad 'src_quad' to an orthotropic rectangle with size 'dst_size'.

Parameters

<i>src_quad</i>	transformation source
<i>dst_size</i>	linear sizes of the transformation destination

Returns

true iff such transform can be defined and constructed

1.18.2.3 Create() [1/4] static [ProjectiveTransform](#)* se::common::ProjectiveTransform::Create ()
[static]

Creates a unit transformation.

Returns

Unit transformation object

1.18.2.4 Create() [2/4] static [ProjectiveTransform](#)* se::common::ProjectiveTransform::Create (
const [Quadrangle](#) & *src_quad*,
const [Quadrangle](#) & *dst_quad*) [static]

Creates a transformation which transforms the quad 'src_quad' to the quad 'dst_quad'.

Parameters

<i>src_quad</i>	transformation source
<i>dst_quad</i>	transformation destination

Returns

Created transform

1.18.2.5 Create() [3/4] `static ProjectiveTransform* se::common::ProjectiveTransform::Create (`
`const Quadrangle & src_quad,`
`const Size & dst_size) [static]`

Create a transformation which transforms the quad 'src_quad' to an orthotropic rectangle with size 'dst_size'.

Parameters

<i>src_quad</i>	transformation source
<i>dst_size</i>	linear sizes of the transformation destination

Returns

Created transform

1.18.2.6 Create() [4/4] `static ProjectiveTransform* se::common::ProjectiveTransform::Create (`
`const Raw2dArrayType & coeffs) [static]`

Creates a transformation given raw matrix.

Parameters

<i>coeffs</i>	transformation matrix
---------------	-----------------------

Returns

Created transform

1.19 se::common::Quadrangle Class Reference

Class representing a quadrangle in an image.

Public Member Functions

- [Quadrangle](#) ()
Default ctor - initializes quadrangle with all points pointing to zero.
- [Quadrangle](#) (const [Point](#) &a, const [Point](#) &b, const [Point](#) &c, const [Point](#) &d)
Main ctor - initializes all four points of the quadrangle.
- [Point](#) & [operator\[\]](#) (int index)
Mutable subscript getter for a point (indices from 0 to 3)

- const [Point](#) & [operator\[\]](#) (int index) const
Subscript getter for a point (indices from 0 to 3)
- const [Point](#) & [GetPoint](#) (int index) const
Getter for a point (indices from 0 to 3)
- [Point](#) & [GetMutablePoint](#) (int index)
Mutable getter for a point (indices from 0 to 3)
- void [SetPoint](#) (int index, const [Point](#) &p)
Setter for a point (indices from 0 to 3)
- [Rectangle](#) [GetBoundingRectangle](#) () const
Calculates, creates, and returns a bounding rectangle for the quadrangle.
- void [Serialize](#) ([Serializer](#) &serializer) const
Serialize rectangle given serializer object.
- void [SerializeImpl](#) ([SerializerImplBase](#) &serializer_impl) const
Internal serialization implementation.

Private Attributes

- [Point](#) pts_ [4]
Constituent points.

1.19.1 Detailed Description

Class representing a quadrangle in an image.

Definition at line 93 of file [se_geometry.h](#).

1.20 se::common::QuadranglesMapIterator Class Reference

[QuadranglesMapIterator](#): iterator object for maps of named quadrangles.

Public Member Functions

- [QuadranglesMapIterator](#) (const [QuadranglesMapIterator](#) &other)
Copy ctor.
- [QuadranglesMapIterator](#) & [operator=](#) (const [QuadranglesMapIterator](#) &other)
Assignment operator.
- [~QuadranglesMapIterator](#) ()
Non-trivial dtor.
- const char * [GetKey](#) () const
Returns the name of the quadrangle.
- const [Quadrangle](#) & [GetValue](#) () const
Returns the target quadrangle.
- bool [Equals](#) (const [QuadranglesMapIterator](#) &rvalue) const
Returns true iff the rvalue iterator points to the same object.
- bool [operator==](#) (const [QuadranglesMapIterator](#) &rvalue) const
Returns true iff the rvalue iterator points to the same object.
- bool [operator!=](#) (const [QuadranglesMapIterator](#) &rvalue) const
Returns true iff the rvalue iterator points to a different object.
- void [Advance](#) ()
Points an iterator to the next object a the collection.
- void [operator++](#) ()
Points an iterator to the next object a the collection.

Static Public Member Functions

- static [QuadranglesMapIterator ConstructFromImpl](#) (const [QuadranglesMapIteratorImpl](#) &pimpl)
Construction of the iterator object from internal implementation.

Private Member Functions

- [QuadranglesMapIterator](#) (const [QuadranglesMapIteratorImpl](#) &pimpl)
Private ctor from internal implementation.

Private Attributes

- class [QuadranglesMapIteratorImpl](#) * [pimpl_](#)
Internal implementation.

1.20.1 Detailed Description

[QuadranglesMapIterator](#): iterator object for maps of named quadrangles.

Definition at line 184 of file [se_geometry.h](#).

1.21 [se::common::QuadranglesVectorIterator](#) Class Reference

[QuadranglesVectorIterator](#): iterator object for vector of quadrangles.

Public Member Functions

- [QuadranglesVectorIterator](#) (const [QuadranglesVectorIterator](#) &other)
Copy ctor.
- [QuadranglesVectorIterator](#) & operator= (const [QuadranglesVectorIterator](#) &other)
Assignment operator.
- [~QuadranglesVectorIterator](#) ()
Non-trivial dtor.
- const [Quadrangle](#) & [GetValue](#) () const
Returns the target quadrangle.
- bool [Equals](#) (const [QuadranglesVectorIterator](#) &rvalue) const
Returns true iff the rvalue iterator points to the same object.
- bool [operator==](#) (const [QuadranglesVectorIterator](#) &rvalue) const
Returns true iff the rvalue iterator points to the same object.
- bool [operator!=](#) (const [QuadranglesVectorIterator](#) &rvalue) const
Returns true iff the rvalue iterator points to a different object.
- void [Advance](#) ()
Points an iterator to the next object a the collection.
- void [operator++](#) ()
Points an iterator to the next object a the collection.

Static Public Member Functions

- static [QuadranglesVectorIterator ConstructFromImpl](#) (const QuadranglesVectorIteratorImpl &pimpl)
Construction of the iterator object from internal implementation.

Private Member Functions

- [QuadranglesVectorIterator](#) (const QuadranglesVectorIteratorImpl &pimpl)
Private ctor from internal implementation.

Private Attributes

- class QuadranglesVectorIteratorImpl * [pimpl_](#)
Internal implementation.

1.21.1 Detailed Description

[QuadranglesVectorIterator](#): iterator object for vector of quadrangles.

Definition at line 136 of file [se_geometry.h](#).

1.22 se::common::Rectangle Class Reference

Class representing a rectangle in an image.

Public Member Functions

- [Rectangle](#) ()
Default ctor - initializes rectangle with zero-valued fields.
- [Rectangle](#) (int [x](#), int [y](#), int [width](#), int [height](#))
Main ctor - initializes all fields of a rectangle.
- void [Serialize](#) ([Serializer](#) &serializer) const
Serialize rectangle given serializer object.
- void [SerializeImpl](#) (SerializerImplBase &serializer_impl) const
Internal serialization implementation.

Public Attributes

- int [x](#)
X-coordinate of the top-left corner (in pixels)
- int [y](#)
Y-coordinate of the top-left corner (in pixels)
- int [width](#)
Width of the rectangle (in pixels)
- int [height](#)
Height of the rectangle (in pixels)

1.22.1 Detailed Description

Class representing a rectangle in an image.

Definition at line 22 of file [se_geometry.h](#).

1.23 `se::common::RectanglesVectorIterator` Class Reference

Public Member Functions

- [RectanglesVectorIterator](#) (const [RectanglesVectorIterator](#) &other)
Copy ctor.
- [RectanglesVectorIterator](#) & operator= (const [RectanglesVectorIterator](#) &other)
Assignment operator.
- [~RectanglesVectorIterator](#) ()
Non-trivial dtor.
- const [Rectangle](#) & [GetValue](#) () const
Returns the target rectangle.
- bool [Equals](#) (const [RectanglesVectorIterator](#) &rvalue) const
Returns true iff the rvalue iterator points to the same object.
- bool [operator==](#) (const [RectanglesVectorIterator](#) &rvalue) const
Returns true if the rvalue iterator points to the same object.
- bool [operator!=](#) (const [RectanglesVectorIterator](#) &rvalue) const
Returns true if the rvalue iterator points to a different object.
- void [Advance](#) ()
Points an iterator to the next object a the collection.
- void [operator++](#) ()
Points an iterator to the next object a the collection.

Static Public Member Functions

- static [RectanglesVectorIterator ConstructFromImpl](#) (const [RectanglesVectorIteratorImpl](#) &pimpl)
Construction of the iterator object from internal implementation.

Private Member Functions

- [RectanglesVectorIterator](#) (const [RectanglesVectorIteratorImpl](#) &pimpl)
Private ctor from internal implementation.

Private Attributes

- class [RectanglesVectorIteratorImpl](#) * [pimpl_](#)
Internal implementation.

1.23.1 Detailed Description

Definition at line 230 of file [se_geometry.h](#).

1.24 se::common::SerializationParameters Class Reference

Class representing serialization parameters.

Public Member Functions

- [SerializationParameters](#) ()
Default ctor.
- [~SerializationParameters](#) ()
Default dtor.
- [SerializationParameters](#) (const [SerializationParameters](#) ©)
Copy ctor.
- [SerializationParameters](#) & [operator=](#) (const [SerializationParameters](#) &other)
Assignment operator.
- bool [HasIgnoredObjectType](#) (const char *object_type) const
Checks whether the serialization parameters have an ignored object type.
- void [AddIgnoredObjectType](#) (const char *object_type)
Adds an object type to the set of ignored.
- void [RemoveIgnoredObjectType](#) (const char *object_type)
Removes an object type from the set of ignored.
- [se::common::StringsSetIterator IgnoredObjectTypesBegin](#) () const
Returns a begin iterator to the set of ignored object types.
- [se::common::StringsSetIterator IgnoredObjectTypesEnd](#) () const
Returns an end iterator to the set of ignored object types.
- bool [HasIgnoredKey](#) (const char *key) const
Checks whether the serialization parameters have an ignored key.
- void [AddIgnoredKey](#) (const char *key)
Adds a key to the set of ignored keys.
- void [RemoveIgnoredKey](#) (const char *key)
Removes a key from the set of ignored keys.
- [se::common::StringsSetIterator IgnoredKeysBegin](#) () const
Returns a begin iterator to the set of ignored keys.
- [se::common::StringsSetIterator IgnoredKeysEnd](#) () const
Returns an end iterator to the set of ignored keys.
- const [SerializationParametersImpl](#) & [GetImpl](#) () const
Returns an internal implementation structure.

Private Attributes

- [SerializationParametersImpl](#) * [pimpl_](#)
pointer to internal implementation

1.24.1 Detailed Description

Class representing serialization parameters.

Definition at line 25 of file [se_serialization.h](#).

1.24.2 Member Function Documentation

1.24.2.1 HasIgnoredObjectType() `bool se::common::SerializationParameters::HasIgnoredObjectType (`
`const char * object_type) const`

Checks whether the serialization parameters have an ignored object type.

Parameters

<i>object_type</i>	the name of the object type to check
--------------------	--------------------------------------

Returns

true iff the object type '*object_type*' is ignored

1.24.2.2 AddIgnoredObjectType() `void se::common::SerializationParameters::AddIgnoredObjectType (`
`const char * object_type)`

Adds an object type to the set of ignored.

Parameters

<i>object_type</i>	the name of the object type to add
--------------------	------------------------------------

1.24.2.3 RemoveIgnoredObjectType() `void se::common::SerializationParameters::RemoveIgnoredObject (`
`const char * object_type)`

Removes an object type from the set of ignored.

Parameters

<i>object_type</i>	the name of the object type to remove
--------------------	---------------------------------------

1.24.2.4 HasIgnoredKey() `bool se::common::SerializationParameters::HasIgnoredKey (`
`const char * key) const`

Checks whether the serialization parameters have an ignored key.

Parameters

<i>key</i>	the name of the key to check
------------	------------------------------

Returns

true iff the key 'key' is ignored

1.24.2.5 AddIgnoredKey() `void se::common::SerializationParameters::AddIgnoredKey (const char * key)`

Adds a key to the set of ignored keys.

Parameters

<i>key</i>	the name of the key to add
------------	----------------------------

1.24.2.6 RemoveIgnoredKey() `void se::common::SerializationParameters::RemoveIgnoredKey (const char * key)`

Removes a key from the set of ignored keys.

Parameters

<i>key</i>	the name of the key to remove
------------	-------------------------------

1.25 se::common::Serializer Class Reference

Class representing the serializer object.

Public Member Functions

- virtual [~Serializer](#) ()=default
Default dtor.
- virtual void [Reset](#) ()=0
Resets the serializer state.
- virtual const char * [GetCStr](#) () const =0
Returns the serialized string.
- virtual const char * [SerializerType](#) () const =0
Returns the name of the serializer type.

Static Public Member Functions

- static [Serializer](#) * [CreateJSONSerializer](#) (const [SerializationParameters](#) ¶ms)
Factory method for creating a JSON serializer object.

1.25.1 Detailed Description

Class representing the serializer object.

Definition at line 104 of file [se_serialization.h](#).

1.25.2 Member Function Documentation

1.25.2.1 CreateJSONSerializer() static [Serializer](#)* se::common::Serializer::CreateJSONSerializer
(
 const [SerializationParameters](#) & params) [static]

Factory method for creating a JSON serializer object.

Parameters

<i>params</i>	serialization parameters
---------------	--------------------------

Returns

Pointer to a constructed serializer object. New object is created, the caller is responsible for deleting it.

1.26 se::common::Size Class Reference

Class representing a size of the (rectangular) object.

Public Member Functions

- [Size](#) ()
Default ctor - initializes size with zero-valued fields.
- [Size](#) (int [width](#), int [height](#))
Main ctor - initializes all fields.
- void [Serialize](#) ([Serializer](#) &serializer) const
Serialize size given serializer object.
- void [SerializeImpl](#) ([SerializerImplBase](#) &serializer_impl) const
Internal serialization implementation.

Public Attributes

- int [width](#)
Width.
- int [height](#)
Height.

1.26.1 Detailed Description

Class representing a size of the (rectangular) object.

Definition at line 70 of file [se_geometry.h](#).

1.27 se::common::StringsMapIterator Class Reference

Iterator to a map from strings to strings.

Public Member Functions

- [StringsMapIterator](#) (const [StringsMapIterator](#) &other)
Copy ctor.
- [StringsMapIterator](#) & [operator=](#) (const [StringsMapIterator](#) &other)
Assignment operator.
- [~StringsMapIterator](#) ()
Non-trivial dtor.
- const char * [GetKey](#) () const
Gets the string key.
- const char * [GetValue](#) () const
Gets the string value.
- bool [Equals](#) (const [StringsMapIterator](#) &rvalue) const
Returns true iff this instance and rvalue point to the same object.
- bool [operator==](#) (const [StringsMapIterator](#) &rvalue) const
Returns true iff this instance and rvalue point to the same object.
- bool [operator!=](#) (const [StringsMapIterator](#) &rvalue) const
Returns true iff this instance and rvalue point to the different objects.
- void [Advance](#) ()
Shifts the iterator to the next object.
- void [operator++](#) ()
Shifts the iterator to the next object.

Static Public Member Functions

- static [StringsMapIterator ConstructFromImpl](#) (const [StringsMapIteratorImpl](#) &pimpl)
Constructs the iterator from an internal implementation structure.

Private Member Functions

- [StringsMapIterator](#) (const StringsMapIteratorImpl &pimpl)
Private ctor from an internal implementation structure.

Private Attributes

- class StringsMapIteratorImpl * [pimpl_](#)
internal implementation

1.27.1 Detailed Description

Iterator to a map from strings to strings.

Definition at line 124 of file [se_strings_iterator.h](#).

1.28 se::common::StringsSetIterator Class Reference

Iterator to a set-like collection of strings.

Public Member Functions

- [StringsSetIterator](#) (const [StringsSetIterator](#) &other)
Copy ctor.
- [StringsSetIterator](#) & [operator=](#) (const [StringsSetIterator](#) &other)
Assignment operator.
- [~StringsSetIterator](#) ()
Non-trivial dtor.
- const char * [GetValue](#) () const
Gets the string value.
- bool [Equals](#) (const [StringsSetIterator](#) &rvalue) const
Returns true iff this instance and rvalue point to the same object.
- bool [operator==](#) (const [StringsSetIterator](#) &rvalue) const
Returns true iff this instance and rvalue point to the same object.
- bool [operator!=](#) (const [StringsSetIterator](#) &rvalue) const
Returns true iff this instance and rvalue point to the different objects.
- void [Advance](#) ()
Shifts the iterator to the next object.
- void [operator++](#) ()
Shifts the iterator to the next object.

Static Public Member Functions

- static [StringsSetIterator ConstructFromImpl](#) (const StringsSetIteratorImpl &pimpl)
Constructs the iterator from an internal implementation structure.

Private Member Functions

- [StringsSetIterator](#) (const StringsSetIteratorImpl &pimpl)
Private ctor from an internal implementation structure.

Private Attributes

- class StringsSetIteratorImpl * [pimpl_](#)
internal implementation

1.28.1 Detailed Description

Iterator to a set-like collection of strings.

Definition at line 75 of file [se_strings_iterator.h](#).

1.29 se::common::StringsVectorIterator Class Reference

Iterator to a vector-like collection of strings.

Public Member Functions

- [StringsVectorIterator](#) (const [StringsVectorIterator](#) &other)
Copy ctor.
- [StringsVectorIterator](#) & [operator=](#) (const [StringsVectorIterator](#) &other)
Assignment operator.
- [~StringsVectorIterator](#) ()
Non-trivial dtor.
- const char * [GetValue](#) () const
Gets the string value.
- bool [Equals](#) (const [StringsVectorIterator](#) &rvalue) const
Returns true iff this instance and rvalue point to the same object.
- bool [operator==](#) (const [StringsVectorIterator](#) &rvalue) const
Returns true iff this instance and rvalue point to the same object.
- bool [operator!=](#) (const [StringsVectorIterator](#) &rvalue) const
Returns true iff this instance and rvalue point to the different objects.
- void [Advance](#) ()
Shifts the iterator to the next object.
- void [operator++](#) ()
Shifts the iterator to the next object.

Static Public Member Functions

- static [StringsVectorIterator ConstructFromImpl](#) (const StringsVectorIteratorImpl &pimpl)
Constructs the iterator from an internal implementation structure.

Private Member Functions

- [StringsVectorIterator](#) (const StringsVectorIteratorImpl &pimpl)
Private ctor from an internal implementation structure.

Private Attributes

- class StringsVectorIteratorImpl * [pimpl_](#)
internal implementation

1.29.1 Detailed Description

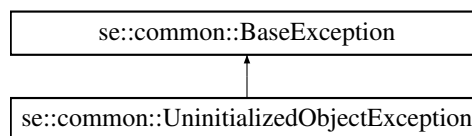
Iterator to a vector-like collection of strings.

Definition at line 26 of file [se_strings_iterator.h](#).

1.30 se::common::UninitializedObjectException Class Reference

[UninitializedObjectException](#): thrown if an attempt is made to access a non-existent or non-initialized object.

Inheritance diagram for se::common::UninitializedObjectException:



Public Member Functions

- [UninitializedObjectException](#) (const char *msg)
Ctor with an exception message.
- [UninitializedObjectException](#) (const [UninitializedObjectException](#) ©)
Copy ctor.
- virtual [~UninitializedObjectException](#) () override=default
Default dtor.
- virtual const char * [ExceptionName](#) () const override
Returns exception class name.

Additional Inherited Members

1.30.1 Detailed Description

[UninitializedObjectException](#): thrown if an attempt is made to access a non-existent or non-initialized object.

Definition at line 112 of file [se_exception.h](#).

1.31 `se::common::YUVDimensions` Class Reference

The `YUVDimensions` struct - extended YUV parameters.

Public Member Functions

- `YUVDimensions ()`
Default ctor.
- `YUVDimensions (int y_pixel_stride, int y_row_stride, int u_pixel_stride, int u_row_stride, int v_pixel_stride, int v_row_stride, int width, int height, YUVType type)`
Main ctor.

Public Attributes

- `int y_plane_pixel_stride`
Y plane pixel stride.
- `int y_plane_row_stride`
Y plane row stride.
- `int u_plane_pixel_stride`
U plane pixel stride.
- `int u_plane_row_stride`
U plane row stride.
- `int v_plane_pixel_stride`
V plane pixel stride.
- `int v_plane_row_stride`
V plane row stride.
- `int width`
image width in pixels
- `int height`
image height in pixels
- `YUVType type`
YUV format type.

1.31.1 Detailed Description

The `YUVDimensions` struct - extended YUV parameters.

Definition at line 49 of file `se_image.h`.

1.32 `se::id::IdAnimatedField` Class Reference

The class representing an animated field.

Public Member Functions

- [~IdAnimatedField](#) ()
Non-trivial dtor.
- [IdAnimatedField](#) ()
Default ctor - creates an empty animated field.
- [IdAnimatedField](#) (const char *name, bool is_accepted=false, double confidence=0.0)
Main ctor for the animated field.
- [IdAnimatedField](#) (const [IdAnimatedField](#) ©)
Copy ctor.
- [IdAnimatedField](#) & [operator=](#) (const [IdAnimatedField](#) &other)
Assignment operator.
- const char * [GetName](#) () const
Returns the field's name.
- void [SetName](#) (const char *name)
Sets the field's name.
- int [GetFramesCount](#) () const
Returns the number of frames in the animated field.
- const [se::common::Image](#) & [GetFrame](#) (int frame_id) const
Returns the frame of the animated field by index.
- void [AppendFrame](#) (const [se::common::Image](#) &frame)
Appends the frame to the animated field.
- void [ClearFrames](#) ()
Removes all frames of the animated field.
- const [IdBaseFieldInfo](#) & [GetBaseFieldInfo](#) () const
Returns the general field information (const ref)
- [IdBaseFieldInfo](#) & [GetMutableBaseFieldInfo](#) ()
Returns the general field information (mutable ref)

Private Attributes

- class [IdAnimatedFieldImpl](#) * [pimpl_](#)
internal implementation

1.32.1 Detailed Description

The class representing an animated field.

Definition at line 337 of file [id_fields.h](#).

1.32.2 Constructor & Destructor Documentation

1.32.2.1 [IdAnimatedField](#)() `se::id::IdAnimatedField::IdAnimatedField (`
 const char * name,
 bool is_accepted = false,
 double confidence = 0.0)

Main ctor for the animated field.

Parameters

<i>name</i>	- name of the field
<i>is_accepted</i>	- field's accept flag
<i>confidence</i>	- field's confidence value (double in range [0.0, 1.0])

1.33 se::id::IdAnimatedFieldsMapIterator Class Reference

The class representing the iterator to named animated fields container.

Public Member Functions

- [~IdAnimatedFieldsMapIterator](#) ()
Non-trivial dtor.
- [IdAnimatedFieldsMapIterator](#) (const [IdAnimatedFieldsMapIterator](#) &other)
Copy ctor.
- [IdAnimatedFieldsMapIterator](#) & [operator=](#) (const [IdAnimatedFieldsMapIterator](#) &other)
Assignment operator.
- const char * [GetKey](#) () const
Returns the key.
- const [IdAnimatedField](#) & [GetValue](#) () const
Returns the value (the animated field object)
- bool [Equals](#) (const [IdAnimatedFieldsMapIterator](#) &rvalue) const
Returns true iff the current instance and rvalue point to the same object.
- bool [operator==](#) (const [IdAnimatedFieldsMapIterator](#) &rvalue) const
Returns true iff the current instance and rvalue point to the same object.
- bool [operator!=](#) (const [IdAnimatedFieldsMapIterator](#) &rvalue) const
Returns true iff the instance and rvalue point to different objects.
- void [Advance](#) ()
Advances the iterator to the next object in the collection.
- void [operator++](#) ()
Advances the iterator to the next object in the collection.

Static Public Member Functions

- static [IdAnimatedFieldsMapIterator ConstructFromImpl](#) (const [IdAnimatedFieldsMapIteratorImpl](#) &pimpl)
Factory method for creating the iterator from the internal implementation.

Private Member Functions

- [IdAnimatedFieldsMapIterator](#) (const [IdAnimatedFieldsMapIteratorImpl](#) &pimpl)
Private ctor from the internal implementation.

Private Attributes

- class [IdAnimatedFieldsMapIteratorImpl](#) * [pimpl_](#)
internal implementation

1.33.1 Detailed Description

The class representing the iterator to named animated fields container.

Definition at line 401 of file [id_fields.h](#).

1.34 se::id::IdBaseFieldInfo Class Reference

The class representing the basic field information, which is present in any field object.

Public Member Functions

- [~IdBaseFieldInfo](#) ()
Non-trivial dtor.
- [IdBaseFieldInfo](#) (bool is_accepted=false, double confidence=0.0)
Main ctor of the basic field information.
- [IdBaseFieldInfo](#) (const [IdBaseFieldInfo](#) ©)
Copy ctor.
- [IdBaseFieldInfo](#) & [operator=](#) (const [IdBaseFieldInfo](#) &other)
Assignment operator.
- bool [GetIsAccepted](#) () const
Returns the field's accept flag.
- void [SetIsAccepted](#) (bool is_accepted)
Sets the field's accept flag.
- double [GetConfidence](#) () const
Returns the field's confidence value (double in range [0.0, 1.0])
- void [SetConfidence](#) (double confidence)
Sets the field's confidence value (must be in range [0.0, 1.0])
- int [GetAttributesCount](#) () const
Gets the number of field's attributes.
- const char * [GetAttribute](#) (const char *attr_name) const
Returns the field attribute by its name.
- bool [HasAttribute](#) (const char *attr_name) const
Returns true iff the field has the attribute with a given name.
- void [SetAttribute](#) (const char *attr_name, const char *attr_value)
Sets the field's attribute by name.
- void [RemoveAttribute](#) (const char *attr_name)
Removes the field's attribute with a given name.
- [se::common::StringsMapIterator](#) [AttributesBegin](#) () const
Returns the 'begin' iterator to the collection of the field attributes.
- [se::common::StringsMapIterator](#) [AttributesEnd](#) () const
Returns the 'end' iterator to the collection of the field attributes.

Private Attributes

- class [IdBaseFieldInfoImpl](#) * [pimpl_](#)
internal implementation

1.34.1 Detailed Description

The class representing the basic field information, which is present in any field object.

Definition at line 34 of file [id_fields.h](#).

1.34.2 Constructor & Destructor Documentation

1.34.2.1 IdBaseFieldInfo() `se::id::IdBaseFieldInfo::IdBaseFieldInfo (bool is_accepted = false, double confidence = 0.0)`

Main ctor of the basic field information.

Parameters

<i>is_accepted</i>	- the accept flag (whether the field is accepted by the system)
<i>confidence</i>	- the field's confidence (double in range [0.0, 1.0])

1.35 se::id::IdCheckField Class Reference

The class representing the check field.

Public Member Functions

- [~IdCheckField](#) ()
Non-trivial dtor.
- [IdCheckField](#) ()
Default ctor - creates and empty check field.
- [IdCheckField](#) (const char *name, IdCheckStatus value, bool is_accepted=false, double confidence=0.0)
Main ctor of the check field.
- [IdCheckField](#) (const [IdCheckField](#) ©)
Copy ctor.
- [IdCheckField](#) & [operator=](#) (const [IdCheckField](#) &other)
Assignment operator.
- const char * [GetName](#) () const
Returns the name of the field.
- void [SetName](#) (const char *name)
Sets the name of the field.
- IdCheckStatus [GetValue](#) () const
Returns the field's value.
- void [SetValue](#) (IdCheckStatus value)
Sets the field's value.
- const [IdBaseFieldInfo](#) & [GetBaseFieldInfo](#) () const
Returns the general field information (const ref)
- [IdBaseFieldInfo](#) & [GetMutableBaseFieldInfo](#) ()
Returns the general field information (mutable ref)

Private Attributes

- `class IdCheckFieldImpl * pimpl_`
internal implementation

1.35.1 Detailed Description

The class representing the check field.

Definition at line [464](#) of file [id_fields.h](#).

1.35.2 Constructor & Destructor Documentation

1.35.2.1 IdCheckField() `se::id::IdCheckField::IdCheckField (`
`const char * name,`
`IdCheckStatus value,`
`bool is_accepted = false,`
`double confidence = 0.0)`

Main ctor of the check field.

Parameters

<i>name</i>	- field's name
<i>value</i>	- field's value (from the <code>IdCheckStatus</code> enumeration)
<i>is_accepted</i>	- field's accept flag
<i>confidence</i>	- field's confidence value (double in range [0.0, 1.0])

1.36 se::id::IdCheckFieldsMapIterator Class Reference

The class representing the iterator to a named check fields collection.

Public Member Functions

- `~IdCheckFieldsMapIterator ()`
Non-trivial dtor.
- `IdCheckFieldsMapIterator (const IdCheckFieldsMapIterator &other)`
Copy ctor.
- `IdCheckFieldsMapIterator & operator= (const IdCheckFieldsMapIterator &other)`
Assignment operator.
- `const char * GetKey () const`
Returns the key.
- `const IdCheckField & GetValue () const`
Returns the value (the check field object)

- `bool Equals` (const `IdCheckFieldsMapIterator` &rvalue) const
Returns true iff the current instance and rvalue point to the same object.
- `bool operator==` (const `IdCheckFieldsMapIterator` &rvalue) const
Returns true iff the current instance and rvalue point to the same object.
- `bool operator!=` (const `IdCheckFieldsMapIterator` &rvalue) const
Returns true iff the instance and rvalue point to different objects.
- `void Advance` ()
Advances the iterator to the next object in the collection.
- `void operator++` ()
Advances the iterator to the next object in the collection.

Static Public Member Functions

- `static IdCheckFieldsMapIterator ConstructFromImpl` (const `IdCheckFieldsMapIteratorImpl` &pimpl)
Factory method for creating the iterator from the internal implementation.

Private Member Functions

- `IdCheckFieldsMapIterator` (const `IdCheckFieldsMapIteratorImpl` &pimpl)
Private ctor from the internal implementation.

Private Attributes

- `class IdCheckFieldsMapIteratorImpl * pimpl_`
internal implementation

1.36.1 Detailed Description

The class representing the iterator to a named check fields collection.

Definition at line 524 of file `id_fields.h`.

1.37 `se::id::IdDocumentInfo` Class Reference

Reference information about document type.

Public Member Functions

- virtual [~IdDocumentInfo](#) ()=default
Default dtor.
- virtual const char * [GetDocumentName](#) () const =0
Returns human-readable name of the document.
- virtual const char * [GetDocumentDescription](#) () const =0
Returns human-readable description of the document.
- virtual int [HasRFID](#) () const =0
Returns RFID chip presence info (1 - presented/0 - not presented/-1 - no info)
- virtual int [SupportedRFID](#) () const =0
Returns RFID chip support info (1 - supported/0 - not supported/-1 - no info)
- virtual int [HasContactChip](#) () const =0
Returns contact chip presence info (1 - presented/0 - not presented/-1 - no info)
- virtual const se::common::StringsSet & [GetPradoLinks](#) () const =0
Returns read-only collection of PRADO links for the document.
- virtual const se::common::StringsSet & [GetDocumentTemplates](#) () const =0
Returns read-only collection of template names for the document.
- virtual float [GetDocumentFieldsRejectionThreshold](#) (const char *field_name) const =0
Returns field's rejection threshold.

1.37.1 Detailed Description

Reference information about document type.

Definition at line 23 of file [id_document_info.h](#).

1.38 se::id::IdEngine Class Reference

The main [IdEngine](#) class containing all configuration and resources of the Smart ID Engine product.

Public Member Functions

- virtual [~IdEngine](#) ()=default
Default dtor.
- virtual [IdSessionSettings](#) * [CreateSessionSettings](#) () const =0
Creates a Session Settings object with default recognition settings, specified in the configuration bundle.
- virtual [IdSession](#) * [SpawnSession](#) (const [IdSessionSettings](#) &settings, const char *signature, [IdFeedback](#) *feedback_reporter=nullptr) const =0
Spawns a new documents recognition session.
- virtual [IdFileAnalysisSessionSettings](#) * [CreateFileAnalysisSessionSettings](#) () const =0
Creates a File Analysis Session Settings object with default settings, specified in the configuration bundle.
- virtual [IdFileAnalysisSession](#) * [SpawnFileAnalysisSession](#) (const [IdFileAnalysisSessionSettings](#) &settings, const char *signature) const =0
Spawns a new file analysis session.
- virtual [IdFaceSessionSettings](#) * [CreateFaceSessionSettings](#) () const =0
Creates a Face Session Settings object with default face matching and processing settings, specified in the configuration bundle.

- virtual [IdFaceSession](#) * [SpawnFaceSession](#) (const [IdFaceSessionSettings](#) &settings, const char *signature, [IdFaceFeedback](#) *feedback_reporter=nullptr) const =0
Spawns a new face matching and processing session.
- virtual [IdOsIResult](#) * [ProcessOneShotLiveness](#) (const [se::common::Image](#) &image) const =0
Process image to check face one shot liveness presentation attacks detections.
- virtual [IdFieldProcessingSessionSettings](#) * [CreateFieldProcessingSessionSettings](#) () const =0
Create a Field Processing Session Settings object with default field processing settings, specified in the configuration bundle.
- virtual [IdFieldProcessingSession](#) * [SpawnFieldProcessingSession](#) (const [IdFieldProcessingSessionSettings](#) &settings, const char *signature) const =0
Spawns a new field processing session.
- virtual [IdVideoAuthenticationSessionSettings](#) * [CreateVideoAuthenticationSessionSettings](#) () const =0
Create a Video Authentication Session Settings object with default parameters, specified in the configuration bundle.
- virtual [IdVideoAuthenticationSession](#) * [SpawnVideoAuthenticationSession](#) (const [IdVideoAuthenticationSessionSettings](#) &settings, const char *signature, [IdVideoAuthenticationCallbacks](#) *video_authentication_callbacks=nullptr, [IdFeedback](#) *feedback_reporter=nullptr, [IdFaceFeedback](#) *face_feedback_reporter=nullptr) const =0
Spawns a new video identification & authentication session.

Static Public Member Functions

- static [IdEngine](#) * [Create](#) (const char *config_path, bool lazy_configuration=true, int init_concurrency=0, bool delayed_initialization=false)
The factory method for creating the [IdEngine](#) object with a configuration bundle file.
- static [IdEngine](#) * [Create](#) (unsigned char *config_data, int config_data_length, bool lazy_configuration=true, int init_concurrency=0, bool delayed_initialization=false)
The factory method for creating the [IdEngine](#) object with a configuration bundle buffer.
- static [IdEngine](#) * [CreateFromEmbeddedBundle](#) (bool lazy_configuration=true, int init_concurrency=0, bool delayed_initialization=false)
The factory method for creating the [IdEngine](#) object with a configuration bundle buffer embedded within the library.
- static const char * [GetVersion](#) ()
Returns the Smart ID Engine version number.

1.38.1 Detailed Description

The main [IdEngine](#) class containing all configuration and resources of the Smart ID Engine product.

Definition at line 42 of file [id_engine.h](#).

1.38.2 Member Function Documentation

1.38.2.1 CreateSessionSettings() virtual [IdSessionSettings](#)* [se::id::IdEngine::CreateSessionSettings](#) () const [pure virtual]

Creates a Session Settings object with default recognition settings, specified in the configuration bundle.

Returns

A newly created [IdSessionSettings](#) object. The object is allocated, the caller is responsible for deleting it.

```
1.38.2.2 SpawnSession() virtual IdSession* se::id::IdEngine::SpawnSession (
    const IdSessionSettings & settings,
    const char * signature,
    IdFeedback * feedback_reporter = nullptr ) const [pure virtual]
```

Spawns a new documents recognition session.

Parameters

<i>settings</i>	- a settings object which are used to spawn a session
<i>signature</i>	- a unique caller signature to unlock the internal library calls (provided with your SDK package)
<i>feedback_reporter</i>	- an optional pointer to the implementation of feedback callbacks class

Returns

A newly created session ([IdSession](#) object). The object is allocated, the caller is responsible for deleting it.

```
1.38.2.3 CreateFileAnalysisSessionSettings() virtual IdFileAnalysisSessionSettings* se::id::Id↵
Engine::CreateFileAnalysisSessionSettings ( ) const [pure virtual]
```

Creates a File Analysis Session Settings object with default settings, specified in the configuration bundle.

Returns

A newly created [IdSessionSettings](#) object. The object is allocated, the caller is responsible for deleting it.

```
1.38.2.4 SpawnFileAnalysisSession() virtual IdFileAnalysisSession* se::id::IdEngine::Spawn↵
FileAnalysisSession (
    const IdFileAnalysisSessionSettings & settings,
    const char * signature ) const [pure virtual]
```

Spawns a new file analysis session.

Parameters

<i>settings</i>	- a settings object which are used to spawn a session
<i>signature</i>	- a unique caller signature to unlock the internal library calls (provided with your SDK package)

Returns

A newly created session ([IdFileAnalysisSession](#) object). The object is allocated, the caller is responsible for deleting it.

1.38.2.5 CreateFaceSessionSettings() virtual [IdFaceSessionSettings*](#) se::id::IdEngine::CreateFaceSessionSettings () const [pure virtual]

Creates a Face Session Settings object with default face matching and processing settings, specified in the configuration bundle.

Returns

A newly created [IdFaceSessionSettings](#) object. The object is allocated, the caller is responsible for deleting it.

1.38.2.6 SpawnFaceSession() virtual [IdFaceSession*](#) se::id::IdEngine::SpawnFaceSession (const [IdFaceSessionSettings](#) & settings, const char * signature, [IdFaceFeedback](#) * feedback_reporter = nullptr) const [pure virtual]

Spawns a new face matching and processing session.

Parameters

<i>settings</i>	- face matching session settings which are used to spawn a new session
<i>signature</i>	- a unique caller signature to unlock the internal library calls (provided with your SDK package)
<i>feedback_reporter</i>	- an optional pointer to the implementation of face session feedback callbacks class

Returns

A newly created session ([IdFaceSession](#) object). The object is allocated, the caller is responsible for deleting it.

1.38.2.7 ProcessOneShotLiveness() virtual [IdOslResult*](#) se::id::IdEngine::ProcessOneShotLiveness (const [se::common::Image](#) & image) const [pure virtual]

Process image to check face one shot liveness presentation attacks detections.

Parameters

<i>image</i>	- an input image
--------------	------------------

Returns

A newly created [IdOslResult](#) object. The object is allocated, the caller is responsible for deleting it.

1.38.2.8 CreateFieldProcessingSessionSettings() virtual [IdFieldProcessingSessionSettings](#)* se↵↵
::id::IdEngine::CreateFieldProcessingSessionSettings () const [pure virtual]

Create a Field Processing Session Settings object with default field processing settings, specified in the configuration bundle.

Returns

A newly created [IdFieldProcessingSessionSettings](#) object. The object is allocated, the caller is responsible for deleting it.

1.38.2.9 SpawnFieldProcessingSession() virtual [IdFieldProcessingSession](#)* se::id::IdEngine::↵↵
SpawnFieldProcessingSession (
 const [IdFieldProcessingSessionSettings](#) & settings,
 const char * signature) const [pure virtual]

Spawns a new field processing session.

Parameters

<i>settings</i>	- field processing session settings which are used to spawn a new session
<i>signature</i>	- a unique caller signature to unlock the internal library calls (provided with your SDK package)

Returns

A newly created [IdFieldProcessingSession](#) object. The object is allocated, the caller is responsible for deleting it.

1.38.2.10 CreateVideoAuthenticationSessionSettings() virtual [IdVideoAuthenticationSession](#)↵↵
Settings* se::id::IdEngine::CreateVideoAuthenticationSessionSettings () const [pure virtual]

Create a Video Authentication Session Settings object with default parameters, specified in the configuration bundle.

Returns

A newly created [IdVideoAuthenticationSessionSettings](#) object. The object is allocated, the caller is responsible for deleting it

1.38.2.11 SpawnVideoAuthenticationSession() virtual [IdVideoAuthenticationSession](#)* se::id::Id↵↵
Engine::SpawnVideoAuthenticationSession (
 const [IdVideoAuthenticationSessionSettings](#) & settings,
 const char * signature,
 [IdVideoAuthenticationCallbacks](#) * video_authentication_callbacks = nullptr,
 [IdFeedback](#) * feedback_reporter = nullptr,
 [IdFaceFeedback](#) * face_feedback_reporter = nullptr) const [pure virtual]

Spawns a new video identification & authentication session.

Parameters

<i>settings</i>	- a settings object which are used to spawn a session
<i>signature</i>	- a unique caller signature to unlock the internal library calls (provided with your SDK package)
<i>video_authentication_callbacks</i>	- an optional pointer to the implementation of video authentication callbacks class
<i>feedback_reporter</i>	- an optional pointer to the implementation of feedback callbacks class

Returns

A newly created session (IdVideoAuthenticationSession object). The object is allocated, the caller is responsible for deleting it.

1.38.2.12 Create() [1/2] static `IdEngine*` `se::id::IdEngine::Create` (
 const char * *config_path*,
 bool *lazy_configuration* = true,
 int *init_concurrency* = 0,
 bool *delayed_initialization* = false) [static]

The factory method for creating the `IdEngine` object with a configuration bundle file.

Parameters

<i>config_path</i>	- filesystem path to a engine configuration bundle
<i>lazy_configuration</i>	- if true, some components of the internal engine structure will be initialized only when first needed. If false, all engine structure will be loaded and initialized immediately. Lazy configuration is enabled by default.
<i>init_concurrency</i>	- allowed concurrent threads while configuring the engine. 0 means unlimited.
<i>delayed_initialization</i>	- performs a blank configuration, delaying the internal engines initialization until the corresponding SpawnSession method is called

Returns

A newly created `IdEngine` object. The object is allocated, the caller is responsible for deleting it.

1.38.2.13 Create() [2/2] static `IdEngine*` `se::id::IdEngine::Create` (
 unsigned char * *config_data*,
 int *config_data_length*,
 bool *lazy_configuration* = true,
 int *init_concurrency* = 0,
 bool *delayed_initialization* = false) [static]

The factory method for creating the `IdEngine` object with a configuration bundle buffer.

Parameters

<i>config_data</i>	- pointer to the configuration bundle file buffer.
<i>config_data_length</i>	- size of the configuration buffer in bytes.
<i>lazy_configuration</i>	- if true, some components of the internal engine structure will be initialized only when first needed. If false, all engine structure will be loaded and initialized immediately. Lazy configuration is enabled by default.
<i>init_concurrency</i>	- allowed concurrent threads while configuring the engine. 0 means unlimited.
<i>delayed_initialization</i>	- performs a blank configuration, delaying the internal engines initialization until the corresponding SpawnSession method is called

Returns

A newly created [IdEngine](#) object. The object is allocated, the caller is responsible for deleting it.

1.38.2.14 CreateFromEmbeddedBundle() `static IdEngine* se::id::IdEngine::CreateFromEmbeddedBundle (`
`bool lazy_configuration = true,`
`int init_concurrency = 0,`
`bool delayed_initialization = false) [static]`

The factory method for creating the [IdEngine](#) object with a configuration bundle buffer embedded within the library.

Parameters

<i>lazy_configuration</i>	- if true, some components of the internal engine structure will be initialized only when first needed. If false, all engine structure will be loaded and initialized immediately. Lazy configuration is enabled by default.
<i>init_concurrency</i>	- allowed concurrent threads while configuring the engine. 0 means unlimited.
<i>delayed_initialization</i>	- performs a blank configuration, delaying the internal engines initialization until the corresponding SpawnSession method is called

Returns

A newly created [IdEngine](#) object. The object is allocated, the caller is responsible for deleting it.

1.38.2.15 GetVersion() `static const char* se::id::IdEngine::GetVersion () [static]`

Returns the Smart ID Engine version number.

Returns

Smart ID Engine version number string

1.39 se::id::IdFaceFeedback Class Reference

Abstract interface for receiving Smart ID Engine face session callbacks. All callbacks must be implemented.

Public Member Functions

- virtual [~IdFaceFeedback](#) ()
Virtual dtor.
- virtual void [MessageReceived](#) (const char *message)=0
Callback for receiving face session messages.

1.39.1 Detailed Description

Abstract interface for receiving Smart ID Engine face session callbacks. All callbacks must be implemented.

Definition at line 22 of file [id_face_feedback.h](#).

1.39.2 Member Function Documentation

1.39.2.1 MessageReceived() virtual void se::id::IdFaceFeedback::MessageReceived (const char * message) [pure virtual]

Callback for receiving face session messages.

Parameters

<i>message</i>	- message from face matching session
----------------	--------------------------------------

1.40 se::id::IdFaceLivenessResult Class Reference

The class which represents the face liveness result.

Public Member Functions

- [~IdFaceLivenessResult](#) ()
Non-trivial dtor.
- [IdFaceLivenessResult](#) (double liveness_estimation=0.0)
Main ctor - stores the liveness estimation value.
- [IdFaceLivenessResult](#) (const [IdFaceLivenessResult](#) ©)
Copy ctor.
- [IdFaceLivenessResult](#) & [operator=](#) (const [IdFaceLivenessResult](#) &other)
Assignment operator.
- double [GetLivenessEstimation](#) () const
Returns the liveness estimation value (double in range [0.0, 1.0])
- void [SetLivenessEstimation](#) (double liveness_estimation)
Sets the liveness estimation value.
- const char * [GetLivenessInstruction](#) () const
Returns pointer to the start of the instruction char.*
- void [SetLivenessInstruction](#) (const char *instruction)
Sets instruction to check liveness.

Private Attributes

- `IdFaceLivenessResultImpl * pimpl_`
internal implementation

1.40.1 Detailed Description

The class which represents the face liveness result.

Definition at line 86 of file `id_face_result.h`.

1.41 `se::id::IdFaceRectsResult` Class Reference

The class representing the face rectangle find result.

Public Member Functions

- `~IdFaceRectsResult ()`
Non-trivial dtor.
- `IdFaceRectsResult ()`
Main ctor.
- `IdFaceRectsResult (const IdFaceRectsResult ©)`
Copy ctor.
- `IdFaceRectsResult & operator= (const IdFaceRectsResult &other)`
Assignment operator.
- `void AddFaceRect (const se::common::Rectangle &inp_rect)`
Add face rect to pimpl.
- `void Clear ()`
Clear all rects from class.
- `int32_t Size () const`
get num of face rects
- `se::common::RectanglesVectorIterator RectanglesBegin () const`
Return const begin iterator for added rectangles.
- `se::common::RectanglesVectorIterator RectanglesEnd () const`
Return const end iterator for added rectangles.

Private Attributes

- `IdFaceRectsResultImpl * pimpl_`
internal implementation

1.41.1 Detailed Description

The class representing the face rectangle find result.

Definition at line 163 of file `id_face_result.h`.

1.42 se::id::IdFaceSession Class Reference

The main processing class for the face matching and analysis functionality of Smart ID Engine.

Public Member Functions

- virtual `~IdFaceSession` ()=default
Default dtor.
- virtual const char * **GetActivationRequest** ()=0
- virtual void **Activate** (const char *activation_response)=0
- virtual bool **IsActivated** () const =0
- virtual `IdFaceSimilarityResult` **GetSimilarity** (const `se::common::Image` &face_image_a, const `se::common::Image` &face_image_b) const =0
Returns the similarity result for the two provided face images (independent from session state)
- virtual `IdFaceSimilarityResult` **GetSimilarityWith** (const `se::common::Image` &compare_image) const =0
Returns the similarity result for the stream of images stored in the session state (lvalue) with an passed rvalue image.
- virtual void **AddFacelImage** (const `se::common::Image` &face_image)=0
Adds a new face image to the current liveness session object.
- virtual void **SetFaceToMatchWith** (const `se::common::Image` &face_image)=0
Adds a new face image to the current face similarity session object.
- virtual `IdFaceRectsResult` **GetRects** (const `common::Image` &image) const =0
Gets rectangles for all faces presented within the given image.
- virtual bool **HasAccumulatedImage** () const =0
Checks whether the session has an accumulated face description.
- virtual `IdFaceLivenessResult` **GetLivenessResult** () const =0
Returns the liveness estimation result for the stream of images passed through the session.
- virtual unsigned int **GetInstructionsCount** () const =0
Returns the number of instructions that user needs to pass liveness.
- virtual unsigned int **GetPushedImagesCount** () const =0
Returns number of images pushed to session.
- virtual unsigned int **GetAllowedNumberOfFailedInstructions** () const =0
Returns number of instructions, that can be failed to pass liveness successfully.
- virtual unsigned int **GetInitializerInstructionTime** () const =0
Returns time of the first instruction, where face is initialized.
- virtual unsigned int **GetPassAllInstruction** () const =0
Returns status of option that allows passing all instruction even if they are failed.
- virtual void **Reset** ()=0
Resets the session state.

1.42.1 Detailed Description

The main processing class for the face matching and analysis functionality of Smart ID Engine.

Definition at line 23 of file `id_face_session.h`.

1.42.2 Member Function Documentation

1.42.2.1 GetSimilarity() `virtual IdFaceSimilarityResult se::id::IdFaceSession::GetSimilarity (const se::common::Image & face_image_a, const se::common::Image & face_image_b) const [pure virtual]`

Returns the similarity result for the two provided face images (independent from session state)

Parameters

<i>face_image</i> _↔ <i>_a</i>	- lvalue image for comparison
<i>face_image</i> _↔ <i>_b</i>	- rvalue image for comparison

Returns

A similarity comparison result object

1.42.2.2 GetSimilarityWith() `virtual IdFaceSimilarityResult se::id::IdFaceSession::GetSimilarityWith (`
`const se::common::Image & compare_image) const [pure virtual]`

Returns the similarity result for the stream of images stored in the session state (lvalue) with an passed rvalue image.

Parameters

<i>compare_image</i>	- the rvalue image to compare the state with
----------------------	--

Returns

A similarity comparison result object

1.42.2.3 AddFacelImage() `virtual void se::id::IdFaceSession::AddFaceImage (`
`const se::common::Image & face_image) [pure virtual]`

Adds a new face image to the current liveness session object.

Parameters

<i>face_image</i>	- the image of a face to be added
-------------------	-----------------------------------

1.42.2.4 SetFaceToMatchWith() `virtual void se::id::IdFaceSession::SetFaceToMatchWith (`
`const se::common::Image & face_image) [pure virtual]`

Adds a new face image to the current face similarity session object.

Parameters

<i>face_image</i>	- the image of a face to be added
-------------------	-----------------------------------

1.42.2.5 GetRects() virtual `IdFaceRectsResult` `se::id::IdFaceSession::GetRects` (
const `common::Image` & `image`) const `[pure virtual]`

Gets rectangles for all faces presented within the given image.

Parameters

<i>image</i>	- the source image
--------------	--------------------

Returns

Found face rectangles

1.42.2.6 HasAccumulatedImage() virtual `bool` `se::id::IdFaceSession::HasAccumulatedImage` ()
const `[pure virtual]`

Checks whether the session has an accumulated face description.

Returns

Returns true if the session has an accumulated face description

1.42.2.7 GetLivenessResult() virtual `IdFaceLivenessResult` `se::id::IdFaceSession::GetLiveness`↔
`Result` () const `[pure virtual]`

Returns the liveness estimation result for the stream of images passed through the session.

Returns

A liveness estimation result object

1.42.2.8 GetInstructionsCount() virtual `unsigned int` `se::id::IdFaceSession::GetInstructionsCount`
() const `[pure virtual]`

Returns the number of instructions that user needs to pass liveness.

Returns

A number of instructions that user needs to pass liveness.

1.42.2.9 GetPushedImagesCount() `virtual unsigned int se::id::IdFaceSession::GetPushedImagesCount () const [pure virtual]`

Returns number of images pushed to session.

Returns

Number of pushed images.

1.42.2.10 GetAllowedNumberOfFailedInstructions() `virtual unsigned int se::id::IdFaceSession::GetAllowedNumberOfFailedInstructions () const [pure virtual]`

Returns number of instructions, that can be failed to pass liveness successfully.

Returns

Number of instructions that can be failed.

1.42.2.11 GetInitializerInstructionTime() `virtual unsigned int se::id::IdFaceSession::GetInitializerInstructionTime () const [pure virtual]`

Returns time of the first instruction, where face is initialized.

Returns

Time of the first instruction in milliseconds.

1.42.2.12 GetPassAllInstruction() `virtual unsigned int se::id::IdFaceSession::GetPassAllInstruction () const [pure virtual]`

Returns status of option that allows passing all instruction even if they are failed.

Returns

True(0) if option is on (allow) and false (0) if off (forbiden).

1.43 se::id::IdFaceSessionSettings Class Reference

The class representing the settings of the face matching session.

Public Member Functions

- virtual [~IdFaceSessionSettings](#) ()=default
Default dtor.
- virtual [IdFaceSessionSettings](#) * [Clone](#) () const =0
Clones the settings object.
- virtual int [GetOptionsCount](#) () const =0
Returns the number of key:value session option pairs.
- virtual const char * [GetOption](#) (const char *option_name) const =0
Returns the value of an option by name.
- virtual bool [HasOption](#) (const char *option_name) const =0
Return true if there is an option with the given name.
- virtual void [SetOption](#) (const char *option_name, const char *option_value)=0
Sets the key:value session option pair.
- virtual void [RemoveOption](#) (const char *option_name)=0
Removes the session option with a given name.
- virtual [se::common::StringsMapIterator](#) [OptionsBegin](#) () const =0
Returns the 'begin' map iterator to the session options collection.
- virtual [se::common::StringsMapIterator](#) [OptionsEnd](#) () const =0
Returns the 'end' map iterator to the session options collection.
- virtual int [GetSupportedLivenessInstructionsCount](#) () const =0
Return the number of key:value liveness instruction pairs.
- virtual bool [HasSupportedLivenessInstruction](#) (const char *instruction) const =0
Return true if there is an liveness instruction with the given name.
- virtual const char * [GetLivenessInstructionDescription](#) (const char *instruction) const =0
Return the description of an liveness instruction by the given name.
- virtual [se::common::StringsMapIterator](#) [SupportedLivenessInstructionsBegin](#) () const =0
Returns the 'begin' map iterator to the liveness instruction collection.
- virtual [se::common::StringsMapIterator](#) [SupportedLivenessInstructionsEnd](#) () const =0
Returns the 'end' map iterator to the liveness instruction collection.

1.43.1 Detailed Description

The class representing the settings of the face matching session.

Definition at line 22 of file [id_face_session_settings.h](#).

1.43.2 Member Function Documentation

1.43.2.1 Clone() virtual [IdFaceSessionSettings](#)* [se::id::IdFaceSessionSettings::Clone](#) () const
[pure virtual]

Clones the settings object.

Returns

A newly created object with the same contents as the current instance. The object is allocated, the caller is responsible for deleting it.

1.44 se::id::IdFaceSimilarityResult Class Reference

The class representing the face similarity comparison result.

Public Member Functions

- [~IdFaceSimilarityResult](#) ()
Non-trivial dtor.
- [IdFaceSimilarityResult](#) (double distance=0.0f, IdFaceStatus status=[IdFaceStatus_NotUsed](#))
Main ctor - stores the similarity estimation value.
- [IdFaceSimilarityResult](#) (const [IdFaceSimilarityResult](#) ©)
Copy ctor.
- [IdFaceSimilarityResult](#) & [operator=](#) (const [IdFaceSimilarityResult](#) &other)
Assignment operator.
- double [GetSimilarityEstimation](#) () const
Gets the faces similarity estimation value (dobule in range [0.0, 1.0])
- void [SetSimilarityEstimation](#) (double similarity_estimation)
Sets the faces similarity estimation value.
- IdFaceStatus [GetStatus](#) () const
Get the process status.
- void [SetStatus](#) (const IdFaceStatus &status)
Set the process status.
- IdFaceSimilarity [GetSimilarity](#) () const
Gets the faces similarity.

Private Attributes

- IdFaceSimilarityResultImpl * [pimpl_](#)
internal implementation

1.44.1 Detailed Description

The class representing the face similarity comparison result.

Definition at line 123 of file [id_face_result.h](#).

1.45 se::id::IdFeedback Class Reference

Abstract interface for receiving Smart ID Engine callbacks. All callbacks must be implemented.

Public Member Functions

- virtual [~IdFeedback](#) ()
Virtual dtor.
- virtual void [FeedbackReceived](#) (const [IdFeedbackContainer](#) &feedback_container)=0
Callback for receiving visualization container.
- virtual void [TemplateDetectionResultReceived](#) (const [IdTemplateDetectionResult](#) &detection_result)=0
Callback for receiving a document page (template) detection result.
- virtual void [TemplateSegmentationResultReceived](#) (const [IdTemplateSegmentationResult](#) &segmentation_result)=0
Callback for receiving a page (template) segmentation result.
- virtual void [ResultReceived](#) (const [IdResult](#) &result_received)=0
Callback for receiving a full document recognition result.
- virtual void [SessionEnded](#) ()=0
Callback which is called when the video stream recognition session ends (the result becomes terminal).

1.45.1 Detailed Description

Abstract interface for receiving Smart ID Engine callbacks. All callbacks must be implemented.

Definition at line 69 of file [id_feedback.h](#).

1.45.2 Member Function Documentation

1.45.2.1 FeedbackReceived() `virtual void se::id::IdFeedback::FeedbackReceived (const IdFeedbackContainer & feedback_container) [pure virtual]`

Callback for receiving visualization container.

Parameters

feedback_container	- the received visualization container (a collection of named quadrangles)
------------------------------------	--

1.45.2.2 TemplateDetectionResultReceived() `virtual void se::id::IdFeedback::TemplateDetectionResultReceived (const IdTemplateDetectionResult & detection_result) [pure virtual]`

Callback for receiving a document page (template) detection result.

Parameters

detection_result	- the received document page (template) detection result
----------------------------------	--

1.45.2.3 TemplateSegmentationResultReceived() `virtual void se::id::IdFeedback::TemplateSegmentationResultReceived (`
`const IdTemplateSegmentationResult & segmentation_result) [pure virtual]`

Callback for receiving a page (template) segmentation result.

Parameters

<code>segmentation_result</code>	- the received document page (template) segmentation result
----------------------------------	---

1.45.2.4 ResultReceived() `virtual void se::id::IdFeedback::ResultReceived (`
`const IdResult & result_received) [pure virtual]`

Callback for receiving a full document recognition result.

Parameters

<code>result_received</code>	- the received document recognition result
------------------------------	--

1.46 se::id::IdFeedbackContainer Class Reference

The class representing the visual feedback container - a collection of named quadrangles in an image.

Public Member Functions

- `~IdFeedbackContainer ()`
Non-trivial dtor.
- `IdFeedbackContainer ()`
Default ctor - creates an empty container.
- `IdFeedbackContainer (const IdFeedbackContainer ©)`
Copy ctor.
- `IdFeedbackContainer & operator= (const IdFeedbackContainer &other)`
Assignment operator.
- `int GetQuadranglesCount () const`
Returns the number of quadrangles in the container.
- `bool HasQuadrangle (const char *quad_name) const`
Returns true iff there exists a quadrangle with a given name.
- `const se::common::Quadrangle & GetQuadrangle (const char *quad_name) const`
Returns the quadrangle with a given name.
- `void SetQuadrangle (const char *quad_name, const se::common::Quadrangle &quad)`
Sets the quadrangle for a given name.
- `void RemoveQuadrangle (const char *quad_name)`
Removes the quadrangle with a given name from the collection.

- `se::common::QuadranglesMapIterator QuadranglesBegin () const`
Returns the 'begin' map iterator to the quadrangles collection.
- `se::common::QuadranglesMapIterator QuadranglesEnd () const`
Returns the 'end' map iterator to the quadrangles collection.

Private Attributes

- `class IdFeedbackContainerImpl * pimpl_`
internal implementation

1.46.1 Detailed Description

The class representing the visual feedback container - a collection of named quadrangles in an image.

Definition at line 23 of file `id_feedback.h`.

1.47 `se::id::IdFieldProcessingSession` Class Reference

The main processing class for Smart ID Engine field processing functionality.

Public Member Functions

- `virtual ~IdFieldProcessingSession ()=default`
Default dtor.
- `virtual const char * GetActivationRequest ()=0`
- `virtual void Activate (const char *activation_response)=0`
- `virtual bool IsActivated () const =0`
- `virtual void Process ()=0`
Performs fields processing for a collection of fields stored in the session instance.
- `virtual int GetTextFieldsCount () const =0`
Gets the number of text fields stored in the session.
- `virtual bool HasTextField (const char *field_name) const =0`
Returns true iff there is a stored text field with a given name.
- `virtual const IdTextField & GetTextField (const char *field_name) const =0`
Returns the stored text field with a given name (const ref)
- `virtual void SetTextField (const char *field_name, const IdTextField &field)=0`
Stores the text field with a given name.
- `virtual void RemoveTextField (const char *field_name)=0`
Removes the stored text field with a given name.
- `virtual IdTextFieldsMapIterator TextFieldsBegin () const =0`
Returns the 'begin' iterator to the stored text fields collection.
- `virtual IdTextFieldsMapIterator TextFieldsEnd () const =0`
Returns the 'end' iterator to the stored text fields collection.
- `virtual int GetImageFieldsCount () const =0`
Gets the number of image fields stored in the session.
- `virtual bool HasImageField (const char *field_name) const =0`
Returns true iff there is a stored image field with a given name.
- `virtual const IdImageField & GetImageField (const char *field_name) const =0`

- Returns the stored image field with a given name (const ref)*
 - virtual void [SetImageField](#) (const char *field_name, const [IdImageField](#) &field)=0
Stores the image field with a given name.
 - virtual void [RemoveImageField](#) (const char *field_name)=0
Removes the stored image field with a given name.
 - virtual [IdImageFieldsMapIterator](#) [ImageFieldsBegin](#) () const =0
Returns the 'begin' iterator to the stored image fields collection.
 - virtual [IdImageFieldsMapIterator](#) [ImageFieldsEnd](#) () const =0
Returns the 'end' iterator to the stored image fields collection.
 - virtual int [GetAnimatedFieldsCount](#) () const =0
Gets the number of animated fields stored in the session.
 - virtual bool [HasAnimatedField](#) (const char *field_name) const =0
Returns true iff there is a stored animated field with a given name.
 - virtual const [IdAnimatedField](#) & [GetAnimatedField](#) (const char *field_name) const =0
Returns the stored animated field with a given name (const ref)
 - virtual void [SetAnimatedField](#) (const char *field_name, const [IdAnimatedField](#) &field)=0
Stores the animated field with a given name.
 - virtual void [RemoveAnimatedField](#) (const char *field_name)=0
Removes the stored animated field with a given name.
 - virtual [IdAnimatedFieldsMapIterator](#) [AnimatedFieldsBegin](#) () const =0
Returns the 'begin' iterator to the stored animated fields collection.
 - virtual [IdAnimatedFieldsMapIterator](#) [AnimatedFieldsEnd](#) () const =0
Returns the 'end' iterator to the stored animated fields collection.
 - virtual int [GetCheckFieldsCount](#) () const =0
Gets the number of check fields stored in the session.
 - virtual bool [HasCheckField](#) (const char *field_name) const =0
Returns true iff there is a stored check field with a given name.
 - virtual const [IdCheckField](#) & [GetCheckField](#) (const char *field_name) const =0
Returns the stored check field with a given name (const ref)
 - virtual void [SetCheckField](#) (const char *field_name, const [IdCheckField](#) &field)=0
Stores the check field with a given name.
 - virtual void [RemoveCheckField](#) (const char *field_name)=0
Removes the stored check field with a given name.
 - virtual [IdCheckFieldsMapIterator](#) [CheckFieldsBegin](#) () const =0
Returns the 'begin' iterator to the stored check fields collection.
 - virtual [IdCheckFieldsMapIterator](#) [CheckFieldsEnd](#) () const =0
Returns the 'end' iterator to the stored check fields collection.
 - virtual void [Reset](#) ()=0
Resets the internal session state, clears all stored fields.

1.47.1 Detailed Description

The main processing class for Smart ID Engine field processing functionality.

Definition at line 23 of file [id_field_processing_session.h](#).

1.48 se::id::IdFieldProcessingSessionSettings Class Reference

The class representing the settings of the field processing session.

Public Member Functions

- virtual `~IdFieldProcessingSessionSettings` ()=default
Default dtor.
- virtual `IdFieldProcessingSessionSettings * Clone` () const =0
Clones the settings object.
- virtual int `GetSupportedFieldProcessorsCount` () const =0
Returns the number of available field processors.
- virtual bool `HasSupportedFieldProcessor` (const char *field_processor_name) const =0
Returns true iff there is an available field processor with a given name.
- virtual `se::common::StringsSetIterator SupportedFieldProcessorsBegin` () const =0
Returns the 'begin' set-like iterator to the collection of available field processor names.
- virtual `se::common::StringsSetIterator SupportedFieldProcessorsEnd` () const =0
Returns the 'end' set-like iterator to the collection of available field processor names.
- virtual const char * `GetCurrentFieldProcessor` () const =0
Returns the name of the active field processor.
- virtual void `SetCurrentFieldProcessor` (const char *field_processor_name)=0
Sets the name of the active field processor.
- virtual int `GetOptionsCount` () const =0
Returns the number of key:value session option pairs.
- virtual const char * `GetOption` (const char *option_name) const =0
Returns the value of an option by name.
- virtual bool `HasOption` (const char *option_name) const =0
Return true iff there is an option with the given name.
- virtual void `SetOption` (const char *option_name, const char *option_value)=0
Sets the key:value session option pair.
- virtual void `RemoveOption` (const char *option_name)=0
Removes the session option with a given name.
- virtual `se::common::StringsMapIterator OptionsBegin` () const =0
Returns the 'begin' map iterator to the session options collection.
- virtual `se::common::StringsMapIterator OptionsEnd` () const =0
Returns the 'end' map iterator to the session options collection.

1.48.1 Detailed Description

The class representing the settings of the field processing session.

Definition at line 22 of file [id_field_processing_session_settings.h](#).

1.48.2 Member Function Documentation

1.48.2.1 Clone() virtual `IdFieldProcessingSessionSettings*` `se::id::IdFieldProcessingSessionSettings::Clone` () const [pure virtual]

Clones the settings object.

Returns

A new object with the same state as the current instance. The newly created object is allocated, the caller is responsible for deleting it

1.49 se::id::IdImageField Class Reference

The class representing an image field.

Public Member Functions

- [~IdImageField](#) ()
Non-trivial dtor.
- [IdImageField](#) ()
Default ctor - creates an empty image field.
- [IdImageField](#) (const char *name, const [se::common::Image](#) &value, bool is_accepted=false, double confidence=0.0)
Main ctor of an image field.
- [IdImageField](#) (const [IdImageField](#) ©)
Copy ctor.
- [IdImageField](#) & [operator=](#) (const [IdImageField](#) &other)
Assignment operator.
- const char * [GetName](#) () const
Returns the field's name.
- void [SetName](#) (const char *name)
Sets the field's name.
- const [se::common::Image](#) & [GetValue](#) () const
Returns the value of the image field (image content)
- void [SetValue](#) (const [se::common::Image](#) &value)
Sets the value of the image field to a new image.
- const [IdBaseFieldInfo](#) & [GetBaseFieldInfo](#) () const
Returns the general field information (const ref)
- [IdBaseFieldInfo](#) & [GetMutableBaseFieldInfo](#) ()
Returns the general field information (mutable ref)

Private Attributes

- class [IdImageFieldImpl](#) * [pimpl_](#)
internal implementation

1.49.1 Detailed Description

The class representing an image field.

Definition at line 224 of file [id_fields.h](#).

1.49.2 Constructor & Destructor Documentation

1.49.2.1 IdImageField() `se::id::IdImageField::IdImageField (const char * name, const se::common::Image & value, bool is_accepted = false, double confidence = 0.0)`

Main ctor of an image field.

Parameters

<i>name</i>	- name of the field
<i>value</i>	- value of the field (image content)
<i>is_accepted</i>	- the field's accept flag
<i>confidence</i>	- the field's confidence (double in range [0.0, 1.0])

1.50 se::id::IdImageFieldsMapIterator Class Reference

The class representing the iterator to named image fields container.

Public Member Functions

- [~IdImageFieldsMapIterator](#) ()
Non-trivial dtor.
- [IdImageFieldsMapIterator](#) (const [IdImageFieldsMapIterator](#) &other)
Copy ctor.
- [IdImageFieldsMapIterator](#) & [operator=](#) (const [IdImageFieldsMapIterator](#) &other)
Assignment operator.
- const char * [GetKey](#) () const
Returns the key.
- const [IdImageField](#) & [GetValue](#) () const
Returns the value (the image field object)
- bool [Equals](#) (const [IdImageFieldsMapIterator](#) &rvalue) const
Returns true iff the current instance and rvalue point to the same object.
- bool [operator==](#) (const [IdImageFieldsMapIterator](#) &rvalue) const
Returns true iff the current instance and rvalue point to the same object.
- bool [operator!=](#) (const [IdImageFieldsMapIterator](#) &rvalue) const
Returns true iff the instance and rvalue point to different objects.
- void [Advance](#) ()
Advances the iterator to the next object in the collection.
- void [operator++](#) ()
Advances the iterator to the next object in the collection.

Static Public Member Functions

- static [IdImageFieldsMapIterator ConstructFromImpl](#) (const [IdImageFieldsMapIteratorImpl](#) &pimpl)
Factory method for creating the iterator from the internal implementation.

Private Member Functions

- [IdImageFieldsMapIterator](#) (const [IdImageFieldsMapIteratorImpl](#) &pimpl)
Private ctor from the internal implementation.

Private Attributes

- class [IdImageFieldsMapIteratorImpl](#) * [pimpl_](#)
internal implementation

1.50.1 Detailed Description

The class representing the iterator to named image fields container.

Definition at line 284 of file [id_fields.h](#).

1.51 `se::id::IdOsIPad` Struct Reference

Face presentation attack detection result.

Public Attributes

- `IdOsIPadName` [name](#)
Presentation attack name.
- `IdOsIPadVerdict` [verdict](#)
Presentation attack detection verdict.

1.51.1 Detailed Description

Face presentation attack detection result.

Definition at line 63 of file [id_face_result.h](#).

1.52 `se::id::IdOsIPadIterator` Class Reference

The class representing the iterator for working with presentation attacks detections.

Public Member Functions

- [IdOsIPadIterator](#) (const [IdOsIPadIterator](#) &other)
Copy ctor.
- [IdOsIPadIterator](#) & [operator=](#) (const [IdOsIPadIterator](#) &other)
Assignment operator.
- [~IdOsIPadIterator](#) ()
Non-trivial dtor.
- const [IdOsIPad](#) & [GetValue](#) () const
Returns the target presentation attack detection.
- bool [Equals](#) (const [IdOsIPadIterator](#) &rvalue) const
Returns true iff the rvalue iterator points to the same object.
- bool [operator==](#) (const [IdOsIPadIterator](#) &rvalue) const
Returns true if the rvalue iterator points to the same object.
- bool [operator!=](#) (const [IdOsIPadIterator](#) &rvalue) const
Returns true if the rvalue iterator points to a different object.
- void [Advance](#) ()
Points an iterator to the next object a the collection.
- void [operator++](#) ()
Points an iterator to the next object a the collection.

Static Public Member Functions

- static [IdOsIPadIterator ConstructFromImpl](#) (const IdOsIPadIteratorImpl &pimpl)
Construction of the iterator object from internal implementation.

Private Member Functions

- [IdOsIPadIterator](#) (const IdOsIPadIteratorImpl &pimpl)
Private ctor from internal implementation.

Private Attributes

- class IdOsIPadIteratorImpl * [pimpl_](#)
Pointer to internal implementation.

1.52.1 Detailed Description

The class representing the iterator for working with presentation attacks detections.

Definition at line 204 of file [id_face_result.h](#).

1.53 se::id::IdOsIResult Class Reference

The class which represents the face one shot liveness result.

Public Member Functions

- [~IdOsIResult](#) ()
Non-trivial dtor.
- [IdOsIResult](#) (const [IdOsIResult](#) ©)
Copy ctor.
- [IdOsIResult](#) & [operator=](#) (const [IdOsIResult](#) &other)
Assignment operator.
- bool [GetVerdict](#) () const
Return true if no presentation attack was detected, false - otherwise.
- void [SetVerdict](#) (bool verdict)
Set the result of face one shot liveness result.
- void [PushPad](#) (const [IdOsIPad](#) &pad)
Push presentation attack detection.
- void [Clear](#) ()
Clear all presentation attack detections.
- int32_t [Size](#) () const
Get number of presentation attack detections.
- [IdOsIPadIterator](#) [OsIPadBegin](#) () const
Return const begin iterator for detected presentation attacks.
- [IdOsIPadIterator](#) [OsIPadEnd](#) () const
Return const end iterator for detected presentation attacks.

Private Attributes

- `IdOslResultImpl * pimpl_`
internal implementation

1.53.1 Detailed Description

The class which represents the face one shot liveness result.

Definition at line 251 of file `id_face_result.h`.

1.54 se::id::IdResult Class Reference

The class representing the document recognition result.

Public Member Functions

- `~IdResult ()`
Non-trivial dtor.
- `IdResult (bool is_terminal=false)`
Default ctor.
- `IdResult (const IdResult ©)`
Copy ctor.
- `IdResult & operator= (const IdResult &other)`
Assignment operator.
- `const char * GetDocumentType () const`
Returns the type of the recognized document.
- `void SetDocumentType (const char *document_type)`
Sets the document type.
- `int GetTemplateDetectionResultsCount () const`
Returns the number of detected document pages (templates)
- `const IdTemplateDetectionResult & GetTemplateDetectionResult (int result_id) const`
Returns the document page (template) detection result by index.
- `void AppendTemplateDetectionResult (const IdTemplateDetectionResult &result)`
Appends the document page (template) detection result.
- `void ClearTemplateDetectionResults ()`
Removes all document page (template) detection results.
- `int GetTemplateSegmentationResultsCount () const`
Returns the number of document page (templates) segmentation results.
- `const IdTemplateSegmentationResult & GetTemplateSegmentationResult (int result_id) const`
Returns the document page (template) segmentation result by index.
- `void AppendTemplateSegmentationResult (const IdTemplateSegmentationResult &result)`
Appends the document page (template) segmentation result.
- `void ClearTemplateSegmentationResults ()`
Removes all document page (template) segmentation results.
- `bool GetIsTerminal () const`
Return true iff the result can be considered terminal.
- `void SetIsTerminal (bool is_terminal)`

- Sets the result's terminality flag.*
- `const se::common::StringsSet & GetSeenTemplates () const`
Returns a const ref to set of seen document pages (templates)
- `const se::common::StringsSet & GetTerminalTemplates () const`
Returns a const ref to set of document pages (templates) with terminality flags.
- `int GetTextFieldsCount () const`
Returns the number of text fields.
- `bool HasTextField (const char *field_name) const`
Returns true iff there is a text field with a given name.
- `const IdTextField & GetTextField (const char *field_name) const`
Returns the text field (const ref) with a given name.
- `void SetTextField (const char *field_name, const IdTextField &field)`
Sets the text field with a given name.
- `void RemoveTextField (const char *field_name)`
Removes the text field with a given name.
- `IdTextFieldsMapIterator TextFieldsBegin () const`
Returns the 'begin' iterator to the collection of text fields.
- `IdTextFieldsMapIterator TextFieldsEnd () const`
Returns the 'end' iterator to the collection of text fields.
- `int GetImageFieldsCount () const`
Returns the number of image fields.
- `bool HasImageField (const char *field_name) const`
Returns true iff there is an image field with a given name.
- `const IdImageField & GetImageField (const char *field_name) const`
Returns the image field (const ref) with a given name.
- `void SetImageField (const char *field_name, const IdImageField &field)`
Sets the image field with a given name.
- `void RemoveImageField (const char *field_name)`
Removes the image field with a given name.
- `IdImageFieldsMapIterator ImageFieldsBegin () const`
Returns the 'begin' iterator to the collection of image fields.
- `IdImageFieldsMapIterator ImageFieldsEnd () const`
Returns the 'end' iterator to the collection of image fields.
- `int GetAnimatedFieldsCount () const`
Returns the number of animated fields.
- `bool HasAnimatedField (const char *field_name) const`
Returns true iff there is an animated field with a given name.
- `const IdAnimatedField & GetAnimatedField (const char *field_name) const`
Returns the animated field (const ref) with a given name.
- `void SetAnimatedField (const char *field_name, const IdAnimatedField &field)`
Sets the animated field with a given name.
- `void RemoveAnimatedField (const char *field_name)`
Removes the animated field with a given name.
- `IdAnimatedFieldsMapIterator AnimatedFieldsBegin () const`
Returns the 'begin' iterator to the collection of animated fields.
- `IdAnimatedFieldsMapIterator AnimatedFieldsEnd () const`
Returns the 'end' iterator to the collection of animated fields.
- `int GetCheckFieldsCount () const`
Returns the number of check fields.
- `bool HasCheckField (const char *field_name) const`
Returns true iff there is a check field with a given name.

- `const IdCheckField & GetCheckField (const char *field_name) const`
Returns the check field (const ref) with a given name.
- `void SetCheckField (const char *field_name, const IdCheckField &field)`
Sets the check field with a given name.
- `void RemoveCheckField (const char *field_name)`
Removes the check field with a given name.
- `IdCheckFieldsMapIterator CheckFieldsBegin () const`
Returns the 'begin' iterator to the collection of check fields.
- `IdCheckFieldsMapIterator CheckFieldsEnd () const`
Returns the 'end' iterator to the collection of check fields.
- `int GetForensicTextFieldsCount () const`
Returns the number of forensic text fields.
- `bool HasForensicTextField (const char *field_name) const`
Returns true iff there is a forensic text field with a given name.
- `const IdTextField & GetForensicTextField (const char *field_name) const`
Returns the forensic text field (const ref) with a given name.
- `void SetForensicTextField (const char *field_name, const IdTextField &field)`
Sets the forensic text field with a given name.
- `void RemoveForensicTextField (const char *field_name)`
Removes the forensic text field with a given name.
- `IdTextFieldsMapIterator ForensicTextFieldsBegin () const`
Returns the 'begin' iterator to the collection of forensic text fields.
- `IdTextFieldsMapIterator ForensicTextFieldsEnd () const`
Returns the 'end' iterator to the collection of forensic text fields.
- `int GetForensicImageFieldsCount () const`
Returns the number of forensic image fields.
- `bool HasForensicImageField (const char *field_name) const`
Returns true iff there is a forensic image field with a given name.
- `const IdImageField & GetForensicImageField (const char *field_name) const`
Returns the forensic image field (const ref) with a given name.
- `void SetForensicImageField (const char *field_name, const IdImageField &field)`
Sets the forensic image field with a given name.
- `void RemoveForensicImageField (const char *field_name)`
Removes the forensic image field with a given name.
- `IdImageFieldsMapIterator ForensicImageFieldsBegin () const`
Returns the 'begin' iterator to the collection of forensic image fields.
- `IdImageFieldsMapIterator ForensicImageFieldsEnd () const`
Returns the 'end' iterator to the collection of forensic image fields.
- `int GetForensicAnimatedFieldsCount () const`
Returns the number of forensic animated fields.
- `bool HasForensicAnimatedField (const char *field_name) const`
Returns true iff there is a forensic animated field with a given name.
- `const IdAnimatedField & GetForensicAnimatedField (const char *field_name) const`
Returns the forensic animated field (const ref) with a given name.
- `void SetForensicAnimatedField (const char *field_name, const IdAnimatedField &field)`
Sets the forensic animated field with a given name.
- `void RemoveForensicAnimatedField (const char *field_name)`
Removes the forensic animated field with a given name.
- `IdAnimatedFieldsMapIterator ForensicAnimatedFieldsBegin () const`
Returns the 'begin' iterator to the collection of forensic animated fields.
- `IdAnimatedFieldsMapIterator ForensicAnimatedFieldsEnd () const`

- Returns the 'end' iterator to the collection of forensic animated fields.*

 - int [GetForensicCheckFieldsCount](#) () const

Returns the number of forensic check fields.
- bool [HasForensicCheckField](#) (const char *field_name) const

Returns true iff there is a forensic check field with a given name.
- const [IdCheckField](#) & [GetForensicCheckField](#) (const char *field_name) const

Returns the forensic check field (const ref) with a given name.
- void [SetForensicCheckField](#) (const char *field_name, const [IdCheckField](#) &field)

Sets the forensic check field with a given name.
- void [RemoveForensicCheckField](#) (const char *field_name)

Removes the forensic check field with a given name.
- [IdCheckFieldsMapIterator](#) [ForensicCheckFieldsBegin](#) () const

Returns the 'begin' iterator to the collection of forensic check fields.
- [IdCheckFieldsMapIterator](#) [ForensicCheckFieldsEnd](#) () const

Returns the 'end' iterator to the collection of forensic check fields.
- int [GetRawTextFieldsCount](#) () const

Returns the number of raw text fields.
- bool [HasRawTextField](#) (const char *field_name) const

Returns true iff there is a raw text field with a given name.
- const [IdTextField](#) & [GetRawTextField](#) (const char *field_name) const

Returns the raw text field (const ref) with a given name.
- void [SetRawTextField](#) (const char *field_name, const [IdTextField](#) &field)

Sets the raw text field with a given name.
- void [RemoveRawTextField](#) (const char *field_name)

Removes the raw text field with a given name.
- [IdTextFieldsMapIterator](#) [RawTextFieldsBegin](#) () const

Returns the 'begin' iterator to the collection of raw text fields.
- [IdTextFieldsMapIterator](#) [RawTextFieldsEnd](#) () const

Returns the 'end' iterator to the collection of raw text fields.
- int [GetRawImageFieldsCount](#) () const

Returns the number of raw image fields.
- bool [HasRawImageField](#) (const char *field_name) const

Returns true iff there is a raw image field with a given name.
- const [IdImageField](#) & [GetRawImageField](#) (const char *field_name) const

Returns the raw image field (const ref) with a given name.
- void [SetRawImageField](#) (const char *field_name, const [IdImageField](#) &field)

Sets the raw image field with a given name.
- void [RemoveRawImageField](#) (const char *field_name)

Removes the raw image field with a given name.
- [IdImageFieldsMapIterator](#) [RawImageFieldsBegin](#) () const

Returns the 'begin' iterator to the collection of raw image fields.
- [IdImageFieldsMapIterator](#) [RawImageFieldsEnd](#) () const

Returns the 'end' iterator to the collection of raw image fields.
- int [GetCorrespondingRawFieldsCount](#) (const char *field_name) const

Returns the number of raw fields corresponding to a given field name.
- bool [HasCorrespondingRawField](#) (const char *field_name, const char *raw_field_name) const

Returns true if there is a raw field 'raw_field_name' corresponding to a field 'field_name'.
- [se::common::StringsSetIterator](#) [CorrespondingRawFieldNamesBegin](#) (const char *field_name) const

Returns the 'begin' iterator to the set of raw field names corresponding to a field 'field_name'.
- [se::common::StringsSetIterator](#) [CorrespondingRawFieldNamesEnd](#) (const char *field_name) const

Returns the 'end' iterator to the set of raw field names corresponding to a field 'field_name'.

- int [GetCorrespondingFieldsCount](#) (const char *raw_field_name) const
Returns the number of fields corresponding to a raw field 'raw_field_name'.
- bool [HasCorrespondingField](#) (const char *raw_field_name, const char *field_name) const
Returns true iff there is a field 'field_name' corresponding to a raw field 'raw_field_name'.
- [se::common::StringsSetIterator CorrespondingFieldNamesBegin](#) (const char *raw_field_name) const
Returns the 'begin' iterator to the set of field names corresponding to a raw field 'raw_field_name'.
- [se::common::StringsSetIterator CorrespondingFieldNamesEnd](#) (const char *raw_field_name) const
Returns the 'end' iterator to the set of field names corresponding to a raw field 'raw_field_name'.
- const [IdResultImpl](#) & [GetImpl](#) () const
Returns the internal implementation (const ref)
- [IdResultImpl](#) & [GetMutableImpl](#) ()
Returns the internal implementation (mutable ref)

Private Attributes

- [IdResultImpl](#) * [pimpl_](#)
internal implementation

1.54.1 Detailed Description

The class representing the document recognition result.

Definition at line 205 of file [id_result.h](#).

1.55 se::id::IdSession Class Reference

The main processing class for the Smart ID Engine document recognition functionality.

Public Member Functions

- virtual [~IdSession](#) ()=default
Default dtor.
- virtual const char * [GetActivationRequest](#) ()=0
Get an activation request for this session (valid for SDK built with dynamic activation feature)
- virtual void [Activate](#) (const char *activation_response)=0
Activate current session (valid for SDK built with dynamic activation feature)
- virtual bool [IsActivated](#) () const =0
Check if current session was activated (valid for SDK built with dynamic activation feature)
- virtual const [IdResult](#) & [Process](#) (const [se::common::Image](#) &image)=0
Processes the input image (or frame)
- virtual const [IdResult](#) & [Process](#) (const [se::common::ByteString](#) &data)=0
Processes the input byte string.
- virtual const [IdResult](#) & [GetCurrentResult](#) () const =0
Returns the current document recognition result (const ref)
- virtual bool [IsResultTerminal](#) () const =0
Returns true iff the current document recognition result is terminal.
- virtual void [Reset](#) ()=0
Resets the session state.

1.55.1 Detailed Description

The main processing class for the Smart ID Engine document recognition functionality.

Definition at line 24 of file [id_session.h](#).

1.55.2 Member Function Documentation

1.55.2.1 GetActivationRequest() `virtual const char* se::id::IdSession::GetActivationRequest ()`
[pure virtual]

Get an activation request for this session (valid for SDK built with dynamic activation feature)

Returns

A string with activation request

1.55.2.2 Activate() `virtual void se::id::IdSession::Activate (`
`const char * activation_response)` [pure virtual]

Activate current session (valid for SDK built with dynamic activation feature)

Parameters

<i>activation_response</i>	- the response from activation server
----------------------------	---------------------------------------

1.55.2.3 IsActivated() `virtual bool se::id::IdSession::IsActivated () const` [pure virtual]

Check if current session was activated (valid for SDK built with dynamic activation feature)

Returns

Boolean check (true/false)

1.55.2.4 Process() [1/2] `virtual const IdResult& se::id::IdSession::Process (`
`const se::common::Image & image)` [pure virtual]

Processes the input image (or frame)

Parameters

<i>image</i>	- the input image (or a frame of a video sequence)
--------------	--

Returns

The updated document recognition result (const ref)

1.55.2.5 Process() [2/2] `virtual const IdResult& se::id::IdSession::Process (`
`const se::common::ByteString & data) [pure virtual]`

Processes the input byte string.

Parameters

<i>data</i>	- the input json containing a description of templates and fields
-------------	---

Returns

The updated document recognition result (const ref)

1.56 se::id::IdSessionSettings Class Reference

The class representing the session settings for the Smart ID Engine document recognition functionality.

Public Member Functions

- virtual `~IdSessionSettings ()`=default
Default dtor.
- virtual `IdSessionSettings * Clone ()` const =0
Clones the session settings object.
- virtual `int GetOptionsCount ()` const =0
Returns the number of key:value session option pairs.
- virtual `const char * GetOption (const char *option_name)` const =0
Returns the value of an option by name.
- virtual `bool HasOption (const char *option_name)` const =0
Return true iff there is an option with the given name.
- virtual `void SetOption (const char *option_name, const char *option_value)`=0
Sets the key:value session option pair.
- virtual `void RemoveOption (const char *option_name)`=0
Removes the session option with a given name.
- virtual `se::common::StringsMapIterator OptionsBegin ()` const =0
Returns the 'begin' map iterator to the session options collection.
- virtual `se::common::StringsMapIterator OptionsEnd ()` const =0
Returns the 'end' map iterator to the session options collection.

- virtual int `GetSupportedModesCount` () const =0
Gets the number of supported modes.
- virtual bool `HasSupportedMode` (const char *mode_name) const =0
Returns true iff there is a supported mode with a given name.
- virtual `se::common::StringsSetIterator` `SupportedModesBegin` () const =0
Returns a 'begin' iterator to the set of supported mode names.
- virtual `se::common::StringsSetIterator` `SupportedModesEnd` () const =0
Returns an 'end' iterator to the set of supported mode names.
- virtual const char * `GetCurrentMode` () const =0
Gets the name of the currently active mode.
- virtual void `SetCurrentMode` (const char *mode_name)=0
Sets the active mode.
- virtual int `GetInternalEnginesCount` () const =0
Gets the number of internal engines within the current mode.
- virtual bool `HasInternalEngine` (const char *engine_name) const =0
Returns true iff there is an internal engine with a given name within the current mode.
- virtual `se::common::StringsSetIterator` `InternalEngineNamesBegin` () const =0
Returns a 'begin' iterator to the set of internal engine names for the current mode.
- virtual `se::common::StringsSetIterator` `InternalEngineNamesEnd` () const =0
Returns an 'end' iterator to the set of internal engine names for the current mode.
- virtual int `GetSupportedDocumentTypesCount` (const char *engine_name) const =0
Returns the number of supported document types for the internal engine with the given name.
- virtual bool `HasSupportedDocumentType` (const char *engine_name, const char *doc_name) const =0
Returns true iff there is a supported document type 'doc_name' in the internal engine with name 'engine_name'.
- virtual `se::common::StringsSetIterator` `SupportedDocumentTypesBegin` (const char *engine_name) const =0
Returns a 'begin' iterator to the set of supported document types for the engine with name 'engine_name'.
- virtual `se::common::StringsSetIterator` `SupportedDocumentTypesEnd` (const char *engine_name) const =0
Returns an 'end' iterator to the set of supported document types for the engine with name 'engine_name'.
- virtual int `GetEnabledDocumentTypesCount` () const =0
Gets the number of enabled document types for a currently active mode.
- virtual bool `HasEnabledDocumentType` (const char *doc_name) const =0
Returns true iff the document type 'doc_name' is enabled in a current mode.
- virtual `se::common::StringsSetIterator` `EnabledDocumentTypesBegin` () const =0
Returns a 'begin' iterator to the set of enabled document types within a currently active mode.
- virtual `se::common::StringsSetIterator` `EnabledDocumentTypesEnd` () const =0
Returns an 'end' iterator to the set of enabled document types within a currently active mode.
- virtual void `AddEnabledDocumentTypes` (const char *doc_type_mask)=0
Adds enabled document types to the session settings, within the currently active mode.
- virtual void `RemoveEnabledDocumentTypes` (const char *doc_type_mask)=0
Removes the document types from the set of enabled ones.
- virtual const `IdDocumentInfo` & `GetDocumentInfo` (const char *doc_name) const =0
Gets reference information about document type.
- virtual int `GetSupportedFieldsCount` (const char *doc_name) const =0
Gets the number of supported fields for a document type 'doc_name' within a currently active mode.
- virtual bool `HasSupportedField` (const char *doc_name, const char *field_name) const =0
Returns true iff the field 'field_name' is supported for document type 'doc_name' within a currently active mode.
- virtual `se::common::StringsSetIterator` `SupportedFieldsBegin` (const char *doc_name) const =0
Returns a 'begin' iterator to the set of fields supported for a document type 'doc_name' within a currently active mode.
- virtual `se::common::StringsSetIterator` `SupportedFieldsEnd` (const char *doc_name) const =0
Returns an 'end' iterator to the set of fields supported for a document type 'doc_name' within a currently active mode.
- virtual `IdFieldType` `GetFieldType` (const char *doc_name, const char *field_name) const =0

- Returns the field type of the field 'field_name' within a document 'doc_name' within a currently active mode.*

 - virtual int [GetEnabledFieldsCount](#) (const char *doc_name) const =0

Returns the number of enabled fields for document 'doc_name' within a currently active mode.
- virtual bool [HasEnabledField](#) (const char *doc_name, const char *field_name) const =0

Returns true iff the field 'field_name' is enabled for document type 'doc_name' within a currently active mode.
- virtual [se::common::StringsSetIterator EnabledFieldsBegin](#) (const char *doc_name) const =0

Returns a 'begin' iterator to the set of enabled field names for the document 'doc_name' within a currently active mode.
- virtual [se::common::StringsSetIterator EnabledFieldsEnd](#) (const char *doc_name) const =0

Returns an 'end' iterator to the set of enabled field names for the document 'doc_name' within a currently active mode.
- virtual void [EnableField](#) (const char *doc_name, const char *field_name)=0

Enables field 'field_name' for the document 'doc_name' within current mode.
- virtual void [DisableField](#) (const char *doc_name, const char *field_name)=0

Disables field 'field_name' for document 'doc_name' within current mode.
- virtual bool [IsForensicsEnabled](#) () const =0

Returns true iff the document forensics functionality is enabled.
- virtual void [EnableForensics](#) ()=0

Enables the document forensics functionality.
- virtual void [DisableForensics](#) ()=0

Disables the document forensics functionality.
- virtual int [GetSupportedForensicFieldsCount](#) (const char *doc_name) const =0

Gets the number of supported forensic fields for a document type 'doc_name' within a currently active mode UPD: this method is deprecated.
- virtual bool [HasSupportedForensicField](#) (const char *doc_name, const char *field_name) const =0

Returns true iff the forensic field 'field_name' is supported for document type 'doc_name' within a currently active mode UPD: this method is deprecated.
- virtual [se::common::StringsSetIterator SupportedForensicFieldsBegin](#) (const char *doc_name) const =0

Returns a 'begin' iterator to the set of forensic fields supported for a document type 'doc_name' within a currently active mode UPD: this method is deprecated.
- virtual [se::common::StringsSetIterator SupportedForensicFieldsEnd](#) (const char *doc_name) const =0

Returns an 'end' iterator to the set of forensic fields supported for a document type 'doc_name' within a currently active mode UPD: this method is deprecated.
- virtual [IdFieldType GetForensicFieldType](#) (const char *doc_name, const char *field_name) const =0

Returns the field type of the forensic field 'field_name' within a document 'doc_name' within a currently active mode.
- virtual int [GetEnabledForensicFieldsCount](#) (const char *doc_name) const =0

Returns the number of enabled forensic fields for document 'doc_name' within a currently active mode UPD: this method is deprecated.
- virtual bool [HasEnabledForensicField](#) (const char *doc_name, const char *field_name) const =0

Returns true iff the forensic field 'field_name' is enabled for document type 'doc_name' within a currently active mode UPD: this method is deprecated.
- virtual [se::common::StringsSetIterator EnabledForensicFieldsBegin](#) (const char *doc_name) const =0

Returns a 'begin' iterator to the set of enabled forensic field names for the document 'doc_name' within a currently active mode UPD: this method is deprecated.
- virtual [se::common::StringsSetIterator EnabledForensicFieldsEnd](#) (const char *doc_name) const =0

Returns an 'end' iterator to the set of enabled forensic field names for the document 'doc_name' within a currently active mode UPD: this method is deprecated.
- virtual void [EnableForensicField](#) (const char *doc_name, const char *field_name)=0

Enables forensic field 'field_name' for the document 'doc_name' within the currently active current mode UPD: this method is deprecated.
- virtual void [DisableForensicField](#) (const char *doc_name, const char *field_name)=0

Disables forensic field 'field_name' for document 'doc_name' within the currently active mode UPD: this method is deprecated.
- virtual [se::common::StringsSetIterator PermissiblePrefixDocMasksBegin](#) ()=0

Returns a 'begin' iterator to the set of permissible prefix document masks for the current mode.

- virtual [se::common::StringsSetIterator PermissiblePrefixDocMasksEnd](#) ()=0

Returns an 'end' iterator to the set of permissible prefix document masks for the current mode.

1.56.1 Detailed Description

The class representing the session settings for the Smart ID Engine document recognition functionality.

Definition at line 25 of file [id_session_settings.h](#).

1.56.2 Member Function Documentation

1.56.2.1 Clone() virtual [IdSessionSettings*](#) se::id::IdSessionSettings::Clone () const [pure virtual]

Clones the session settings object.

Returns

A new object of session settings with an identical state. A newly created object is allocated, the caller is responsible for deleting it

1.56.2.2 AddEnabledDocumentTypes() virtual void se::id::IdSessionSettings::AddEnabledDocumentTypes (const char * *doc_type_mask*) [pure virtual]

Adds enabled document types to the session settings, within the currently active mode.

Parameters

<i>doc_type_mask</i>	- a document type, or a mask with wildcards (*). The wildcard symbol will match any sequence of characters, and the lookup dictionary for matched document types are taken from the set of supported document types within the currently active mode.
----------------------	---

NB: the set of matched document types must belong to a single internal engine.

1.56.2.3 RemoveEnabledDocumentTypes() virtual void se::id::IdSessionSettings::RemoveEnabledDocumentTypes (const char * *doc_type_mask*) [pure virtual]

Removes the document types from the set of enabled ones.

Parameters

<code>doc_type_mask</code>	- a document type, or a mask with wildcards ('*'). The wildcard symbol will match any sequence of characters, and the lookup dictionary for matched document types are taken from the set of supported document types within the currently active mode.
----------------------------	---

1.57 `se::id::IdTemplateDetectionResult` Class Reference

The class representing the result of page (template) detection.

Public Member Functions

- `~IdTemplateDetectionResult ()`
Non-trivial dtor.
- `IdTemplateDetectionResult (const char *tpl_name, const se::common::Quadrangle &quadrangle, bool is_accepted=false, double confidence=0.0, const se::common::Size &standard_size={})`
Main ctor of the template detection result.
- `IdTemplateDetectionResult (const IdTemplateDetectionResult ©)`
Copy ctor.
- `IdTemplateDetectionResult & operator= (const IdTemplateDetectionResult &other)`
Assignment operator.
- `const char * GetTemplateName () const`
Returns the template name.
- `void SetTemplateName (const char *name)`
Sets the template name.
- `const se::common::Quadrangle & GetQuadrangle () const`
Returns the template quadrangle.
- `void SetQuadrangle (const se::common::Quadrangle &quadrangle)`
Sets the template quadrangle.
- `bool GetIsAccepted () const`
Returns the template's accept flag.
- `void SetIsAccepted (bool is_accepted)`
Sets the template's accept flag.
- `double GetConfidence () const`
Returns the template confidence (double in range [0.0, 1.0])
- `void SetConfidence (double confidence)`
Sets the template confidence (must be in range [0.0, 1.0])
- `const se::common::Size & GetStandardSize () const`
Returns the template's standard size in pixels.
- `void SetStandardSize (const se::common::Size &standard_size)`
Sets the template's standard size in pixels.
- `int GetAttributesCount () const`
Gets the number of field's attributes.
- `const char * GetAttribute (const char *attr_name) const`
Returns the field attribute by its name.
- `bool HasAttribute (const char *attr_name) const`
Returns true iff the field has the attribute with a given name.
- `void SetAttribute (const char *attr_name, const char *attr_value)`

- Sets the field's attribute by name.*
- void `RemoveAttribute` (const char *attr_name)
Removes the field's attribute with a given name.
- `se::common::StringsMapIterator AttributesBegin` () const
Returns the 'begin' iterator to the collection of the field attributes.
- `se::common::StringsMapIterator AttributesEnd` () const
Returns the 'end' iterator to the collection of the field attributes.

Private Attributes

- class `IdTemplateDetectionResultImpl` * `pimpl_`
internal implementation

1.57.1 Detailed Description

The class representing the result of page (template) detection.

Definition at line 24 of file `id_result.h`.

1.57.2 Constructor & Destructor Documentation

1.57.2.1 `IdTemplateDetectionResult()` `se::id::IdTemplateDetectionResult::IdTemplateDetectionResult` (const char * tpl_name, const `se::common::Quadrangle` & quadrangle, bool is_accepted = false, double confidence = 0.0, const `se::common::Size` & standard_size = {})

Main ctor of the template detection result.

Parameters

<i>tpl_name</i>	- name of the detected document page (template)
<i>quadrangle</i>	- quadrangle of the detected template in an image
<i>is_accepted</i>	- detected template's accept flag
<i>confidence</i>	- detected template's confidence (double in [0.0, 1.0])
<i>standard_size</i>	- the standard size of the template in pixels

1.58 `se::id::IdTemplateSegmentationResult` Class Reference

The class representing the page (template) segmentation result.

Public Member Functions

- [~IdTemplateSegmentationResult](#) ()
Non-trivial dtor.
- [IdTemplateSegmentationResult](#) (bool is_accepted=false, double confidence=0.0)
Main ctor of the template segmentation result.
- [IdTemplateSegmentationResult](#) (const [IdTemplateSegmentationResult](#) ©)
Copy ctor.
- [IdTemplateSegmentationResult](#) & [operator=](#) (const [IdTemplateSegmentationResult](#) &other)
Assignment operator.
- bool [GetIsAccepted](#) () const
Returns the segmentation result's accept flag.
- void [SetIsAccepted](#) (bool is_accepted)
Sets the segmentation result's accept flag.
- double [GetConfidence](#) () const
Returns the segmentation result's confidence (double in [0.0, 1.0])
- void [SetConfidence](#) (double confidence)
Sets the segmentation result's confidence (must be in range [0.0, 1.0])
- int [GetRawFieldsCount](#) () const
Returns the number of raw fields in the segmentation result.
- bool [HasRawField](#) (const char *raw_field_name) const
Returns true iff there is a raw field with a given name.
- const [se::common::Quadrangle](#) & [GetRawFieldQuadrangle](#) (const char *raw_field_name) const
Returns the source image quadrangle of the raw field by name.
- const [se::common::Quadrangle](#) & [GetRawFieldTemplateQuadrangle](#) (const char *raw_field_name) const
Returns the template image quadrangle of the raw field by name.
- void [SetRawFieldQuadrangles](#) (const char *raw_field_name, const [se::common::Quadrangle](#) &quadrangle, const [se::common::Quadrangle](#) &template_quadrangle)
Sets the quadrangle pair of the raw field in the segmentation result.
- void [RemoveRawField](#) (const char *raw_field_name)
Removes the raw field with a given name.
- [se::common::QuadranglesMapIterator](#) [RawFieldQuadranglesBegin](#) () const
Returns a 'begin' iterator to the collection of raw field source image quadrangles.
- [se::common::QuadranglesMapIterator](#) [RawFieldQuadranglesEnd](#) () const
Returns an 'end' iterator to the collection of raw field source image quadrangles.
- [se::common::QuadranglesMapIterator](#) [RawFieldTemplateQuadranglesBegin](#) () const
Returns a 'begin' iterator to the collection of raw field template image quadrangles.
- [se::common::QuadranglesMapIterator](#) [RawFieldTemplateQuadranglesEnd](#) () const
Returns an 'end' iterator to the collection of raw field template image quadrangles.

Private Attributes

- class [IdTemplateSegmentationResultImpl](#) * [pimpl_](#)
internal implementation

1.58.1 Detailed Description

The class representing the page (template) segmentation result.

Definition at line 117 of file [id_result.h](#).

1.58.2 Constructor & Destructor Documentation

1.58.2.1 IdTemplateSegmentationResult() `se::id::IdTemplateSegmentationResult::IdTemplateSegmentationResult (bool is_accepted = false, double confidence = 0.0)`

Main ctor of the template segmentation result.

Parameters

<i>is_accepted</i>	- the segmentation result's accept flag
<i>confidence</i>	- the segmentation result's confidence (in [0.0, 1.0])

1.59 se::id::IdTextField Class Reference

The class representing the recognition result of a text field.

Public Member Functions

- [~IdTextField \(\)](#)
Non-trivial dtor.
- [IdTextField \(\)](#)
Default ctor - creates an empty field.
- [IdTextField](#) (const char *name, const [se::common::OcrString](#) &value, bool is_accepted=false, double confidence=0.0)
Main ctor of the text field.
- [IdTextField](#) (const char *name, const char *value, bool is_accepted=false, double confidence=0.0)
Text field ctor with a simple C-string value.
- [IdTextField](#) (const [IdTextField](#) ©)
Copy ctor.
- [IdTextField & operator=](#) (const [IdTextField](#) &other)
Assignment operator.
- const char * [GetName](#) () const
Returns the name of the text field.
- void [SetName](#) (const char *name)
Sets the name of the text field.
- const [se::common::OcrString](#) & [GetValue](#) () const
Returns the stored value of the text field.
- void [SetValue](#) (const [se::common::OcrString](#) &value)
Sets the value of the text field as an OcrString object.
- void [SetValue](#) (const char *value)
Sets the value of the text field as a C-string.
- const [IdBaseFieldInfo](#) & [GetBaseFieldInfo](#) () const
Returns the general field information (const ref)
- [IdBaseFieldInfo](#) & [GetMutableBaseFieldInfo](#) ()
Returns the general field information (mutable ref)

Private Attributes

- class IdTextFieldImpl * [pimpl_](#)
internal implementation

1.59.1 Detailed Description

The class representing the recognition result of a text field.

Definition at line 98 of file [id_fields.h](#).

1.59.2 Constructor & Destructor Documentation

1.59.2.1 IdTextField() [1/2] `se::id::IdTextField::IdTextField (`
 `const char * name,`
 `const se::common::OcrString & value,`
 `bool is_accepted = false,`
 `double confidence = 0.0)`

Main ctor of the text field.

Parameters

<i>name</i>	- name of the text field
<i>value</i>	- the value of the text field as an OcrString object
<i>is_accepted</i>	- the field's accept flag
<i>confidence</i>	- the field's confidence (double in range [0.0, 1.0])

1.59.2.2 IdTextField() [2/2] `se::id::IdTextField::IdTextField (`
 `const char * name,`
 `const char * value,`
 `bool is_accepted = false,`
 `double confidence = 0.0)`

Text field ctor with a simple C-string value.

Parameters

<i>name</i>	- name of the field
<i>value</i>	- the value of the text field as a C-string
<i>is_accepted</i>	- the field's accept flag
<i>confidence</i>	- the field's confidence (double in range [0.0, 1.0])

1.60 se::id::IdTextFieldsMapIterator Class Reference

A class representing the iterator for string->text field maps.

Public Member Functions

- [~IdTextFieldsMapIterator](#) ()
Non-trivial dtor.
- [IdTextFieldsMapIterator](#) (const [IdTextFieldsMapIterator](#) &other)
Copy ctor.
- [IdTextFieldsMapIterator](#) & [operator=](#) (const [IdTextFieldsMapIterator](#) &other)
Assignment operator.
- const char * [GetKey](#) () const
Returns the key.
- const [IdTextField](#) & [GetValue](#) () const
Returns the value (the text field object)
- bool [Equals](#) (const [IdTextFieldsMapIterator](#) &rvalue) const
Returns true iff the current instance and rvalue point to the same object.
- bool [operator==](#) (const [IdTextFieldsMapIterator](#) &rvalue) const
Returns true iff the current instance and rvalue point to the same object.
- bool [operator!=](#) (const [IdTextFieldsMapIterator](#) &rvalue) const
Returns true iff the instance and rvalue point to different objects.
- void [Advance](#) ()
Advances the iterator to the next object in the collection.
- void [operator++](#) ()
Advances the iterator to the next object in the collection.

Static Public Member Functions

- static [IdTextFieldsMapIterator ConstructFromImpl](#) (const [IdTextFieldsMapIteratorImpl](#) &pimpl)
Factory method for creating the iterator from the internal implementation.

Private Member Functions

- [IdTextFieldsMapIterator](#) (const [IdTextFieldsMapIteratorImpl](#) &pimpl)
Private ctor from the internal implementation.

Private Attributes

- [IdTextFieldsMapIteratorImpl](#) * [pimpl_](#)
internal implementation

1.60.1 Detailed Description

A class representing the iterator for string->text field maps.

Definition at line 172 of file [id_fields.h](#).

2 File Documentation

2.1 id_engine.h File Reference

id.engine main engine class declaration

Classes

- class [se::id::IdEngine](#)

The main [IdEngine](#) class containing all configuration and resources of the Smart ID Engine product.

2.1.1 Detailed Description

id.engine main engine class declaration

Definition in file [id_engine.h](#).

2.2 id_engine.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef IDENGINE_ID_ENGINE_H_INCLUDED
00012 #define IDENGINE_ID_ENGINE_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015
00016 #include <idengine/id_session_settings.h>
00017 #include <idengine/id_session.h>
00018
00019 #include <idengine/id_file_analysis_session_settings.h>
00020 #include <idengine/id_file_analysis_session.h>
00021
00022 #include <idengine/id_face_session_settings.h>
00023 #include <idengine/id_face_session.h>
00024
00025 #include <idengine/id_field_processing_session_settings.h>
00026 #include <idengine/id_field_processing_session.h>
00027
00028 #include <idengine/id_video_authentication_callbacks.h>
00029 #include <idengine/id_video_authentication_session_settings.h>
00030 #include <idengine/id_video_authentication_session.h>
00031
00032 #include <idengine/id_feedback.h>
00033 #include <idengine/id_face_feedback.h>
00034
00035 namespace se { namespace id {
00036
00037
00042 class SE_DLL_EXPORT IdEngine {
00043 public:
00045     virtual ~IdEngine() = default;
00046
00053     virtual IdSessionSettings* CreateSessionSettings() const = 0;
00054
00065     virtual IdSession* SpawnSession(
00066         const IdSessionSettings& settings,
00067         const char* signature,
00068         IdFeedback* feedback_reporter = nullptr) const = 0;
00069
00076     virtual IdFileAnalysisSessionSettings* CreateFileAnalysisSessionSettings() const = 0;
00077
00086     virtual IdFileAnalysisSession* SpawnFileAnalysisSession(
00087         const IdFileAnalysisSessionSettings& settings,
00088         const char* signature) const = 0;
00089
00096     virtual IdFaceSessionSettings* CreateFaceSessionSettings() const = 0;
00097

```

```

00109 virtual IdFaceSession* SpawnFaceSession(
00110     const IdFaceSessionSettings& settings,
00111     const char* signature,
00112     IdFaceFeedback* feedback_reporter = nullptr) const = 0;
00113
00120 virtual IdOslResult* ProcessOneShotLiveness(const se::common::Image& image) const = 0;
00121
00128 virtual IdFieldProcessingSessionSettings* CreateFieldProcessingSessionSettings() const = 0;
00129
00139 virtual IdFieldProcessingSession* SpawnFieldProcessingSession(
00140     const IdFieldProcessingSessionSettings& settings,
00141     const char* signature) const = 0;
00142
00149 virtual IdVideoAuthenticationSessionSettings*
00150 CreateVideoAuthenticationSessionSettings() const = 0;
00151
00164 virtual IdVideoAuthenticationSession* SpawnVideoAuthenticationSession(
00165     const IdVideoAuthenticationSessionSettings& settings,
00166     const char* signature,
00167     IdVideoAuthenticationCallbacks* video_authentication_callbacks = nullptr,
00168     IdFeedback* feedback_reporter = nullptr,
00169     IdFaceFeedback* face_feedback_reporter = nullptr) const = 0;
00170
00171 public:
00188 static IdEngine* Create(const char* config_path,
00189     bool lazy_configuration = true,
00190     int init_concurrency = 0,
00191     bool delayed_initialization = false);
00192
00210 static IdEngine* Create(unsigned char* config_data,
00211     int config_data_length,
00212     bool lazy_configuration = true,
00213     int init_concurrency = 0,
00214     bool delayed_initialization = false);
00215
00231 static IdEngine* CreateFromEmbeddedBundle(
00232     bool lazy_configuration = true,
00233     int init_concurrency = 0,
00234     bool delayed_initialization = false);
00235
00240 static const char* GetVersion();
00241 };
00242
00243 } } // namespace se::id
00244
00245
00246 #endif // IDENGINE_ID_ENGINE_H_INCLUDED

```

2.3 id_face_feedback.h File Reference

id.engine face matching session feedback classes declaration

Classes

- class [se::id::IdFaceFeedback](#)

Abstract interface for receiving Smart ID Engine face session callbacks. All callbacks must be implemented.

2.3.1 Detailed Description

id.engine face matching session feedback classes declaration

Definition in file [id_face_feedback.h](#).

2.4 id_face_feedback.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef IDENGINE_ID_FACE_FEEDBACK_H_INCLUDED
00012 #define IDENGINE_ID_FACE_FEEDBACK_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015
00016 namespace se { namespace id {
00017
00022 class SE_DLL_EXPORT IdFaceFeedback {
00023 public:
00025     virtual ~IdFaceFeedback();
00026
00031     virtual void MessageReceived(const char* message) = 0;
00032 };
00033
00034 } } // namespace se::id
00035
00036 #endif // IDENGINE_ID_FACE_FEEDBACK_H_INCLUDED

```

2.5 id_face_result.h File Reference

id.engine face results declaration

Classes

- struct [se::id::IdOsIPad](#)
Face presentation attack detection result.
- class [se::id::IdFaceLivenessResult](#)
The class which represents the face liveness result.
- class [se::id::IdFaceSimilarityResult](#)
The class representing the face similarity comparison result.
- class [se::id::IdFaceRectsResult](#)
The class representing the face rectangle find result.
- class [se::id::IdOsIPadIterator](#)
The class representing the iterator for working with presentation attacks detections.
- class [se::id::IdOsIResult](#)
The class which represents the face one shot liveness result.

Variables

- [IdFaceStatus_NotUsed](#)
The status is not initialized.
- [IdFaceStatus_Success](#)
The status is initialized, two face images have been compared.
- [IdFaceStatus_A_FaceNotFound](#)
No face was found in image A.
- [IdFaceStatus_B_FaceNotFound](#)
No face was found in image B.
- [IdFaceStatus_FaceNotFound](#)
The both faces were not found in images A and B (for the "one-to-one" mode)
- [Different](#)
Faces are totally different.

- [Uncertain](#)
Faces cannot be identified as totally the same.
- [Same](#)
Faces are totally the same.
- [NoFacePresented](#)
No face on image.
- [UnderRepresentedFace](#)
The face is not fully represented.
- [ScreenRecapturedFace](#)
Screen was recaptured.
- [NotDetected](#)
Not detected.
- [NotRun](#)
Not run.

2.5.1 Detailed Description

id.engine face results declaration

Definition in file [id_face_result.h](#).

2.6 id_face_result.h

```

00001  /*
00002  Copyright (c) 2016-2026, Smart Engines Service LLC
00003  All rights reserved.
00004  */
00005
00011  #ifndef IDENGINE_ID_FACE_RESULT_H_INCLUDED
00012  #define IDENGINE_ID_FACE_RESULT_H_INCLUDED
00013
00014  #include <secommon/se_common.h>
00015
00016  #include <map>
00017  #include <string>
00018  #include <vector>
00019
00020  #ifdef WITH_IDFACE_INTERNAL
00021  #include <facerecog2/facerecog_result.h>
00022  #endif // WITH_IDFACE_INTERNAL
00023
00024  namespace se { namespace id {
00025
00026  enum SE_DLL_EXPORT IdFaceStatus {
00027      IdFaceStatus_NotUsed,
00028      IdFaceStatus_Success,
00029      IdFaceStatus_A_FaceNotFound,
00030      IdFaceStatus_B_FaceNotFound,
00031      IdFaceStatus_FaceNotFound,
00032      IdFaceStatus_NoAccumulatedResult
00033  };
00034
00035  enum SE_DLL_EXPORT IdFaceSimilarity {
00036      Different,
00037      Uncertain,
00038      Same,
00039  };
00040
00044  enum SE_DLL_EXPORT IdOsIPadName {
00045      NoFacePresented,
00046      UnderRepresentedFace,
00047      ScreenRecapturedFace,
00048      NonUniquePersonPresented
00049  };
00050
00054  enum SE_DLL_EXPORT IdOsIPadVerdict {
00055      NotDetected,
00056      NotRun,
00057      Detected

```

```
00058 };
00059
00063 struct SE_DLL_EXPORT IdOslPad {
00064     IdOslPadName    name;
00065     IdOslPadVerdict verdict;
00066 };
00067
00068 #ifdef WITH_IDFACE_INTERNAL
00072 enum SE_DLL_EXPORT IdFaceOrientation {
00073     IdFaceOrientation_0,
00074     IdFaceOrientation_90CW,
00075     IdFaceOrientation_180,
00076     IdFaceOrientation_270CW
00077 };
00078 #endif
00079
00081 class IdFaceLivenessResultImpl;
00082
00086 class SE_DLL_EXPORT IdFaceLivenessResult {
00087 public:
00089     ~IdFaceLivenessResult();
00090
00092     IdFaceLivenessResult(double liveness_estimation = 0.0);
00093
00095     IdFaceLivenessResult(const IdFaceLivenessResult& copy);
00096
00098     IdFaceLivenessResult& operator =(const IdFaceLivenessResult& other);
00099
00100 public:
00102     double GetLivenessEstimation() const;
00103
00105     void SetLivenessEstimation(double liveness_estimation);
00106
00108     const char* GetLivenessInstruction() const;
00109
00111     void SetLivenessInstruction(const char* instruction);
00112
00113 private:
00114     IdFaceLivenessResultImpl* pimpl_;
00115 };
00116
00118 class IdFaceSimilarityResultImpl;
00119
00123 class SE_DLL_EXPORT IdFaceSimilarityResult {
00124 public:
00126     ~IdFaceSimilarityResult();
00127
00129     IdFaceSimilarityResult(double distance = 0.0f, IdFaceStatus status = IdFaceStatus_NotUsed);
00130
00132     IdFaceSimilarityResult(const IdFaceSimilarityResult& copy);
00133
00135     IdFaceSimilarityResult& operator = (const IdFaceSimilarityResult& other);
00136
00137 public:
00139     double GetSimilarityEstimation() const;
00140
00142     void SetSimilarityEstimation(double similarity_estimation);
00143
00145     IdFaceStatus GetStatus() const;
00146
00148     void SetStatus(const IdFaceStatus& status);
00149
00151     IdFaceSimilarity GetSimilarity() const;
00152
00153 private:
00154     IdFaceSimilarityResultImpl* pimpl_;
00155 };
00156
00158 class IdFaceRectsResultImpl;
00159
00163 class SE_DLL_EXPORT IdFaceRectsResult {
00164 public:
00166     ~IdFaceRectsResult();
00167
00169     IdFaceRectsResult();
00170
00172     IdFaceRectsResult(const IdFaceRectsResult& copy);
00173
00175     IdFaceRectsResult& operator = (const IdFaceRectsResult& other);
00176
00177 public:
00179     void AddFaceRect(const se::common::Rectangle& inp_rect);
00180
00182     void Clear();
00183
00185     int32_t Size() const;
00186
```

```
00188     se::common::RectanglesVectorIterator RectanglesBegin() const;
00189
00191     se::common::RectanglesVectorIterator RectanglesEnd() const;
00192
00193 private:
00194     IdFaceRectsResultImpl* pimpl_;
00195 };
00196
00198 class IdOslPadIteratorImpl;
00199
00200
00204 class SE_DLL_EXPORT IdOslPadIterator {
00205 private:
00207     IdOslPadIterator(const IdOslPadIteratorImpl& pimpl);
00208
00209 public:
00211     IdOslPadIterator(const IdOslPadIterator& other);
00212
00214     IdOslPadIterator& operator =(const IdOslPadIterator& other);
00215
00217     ~IdOslPadIterator();
00218
00220     static IdOslPadIterator ConstructFromImpl(
00221         const IdOslPadIteratorImpl& pimpl);
00222
00224     const IdOslPad& GetValue() const;
00225
00227     bool Equals(const IdOslPadIterator& rvalue) const;
00228
00230     bool operator ==(const IdOslPadIterator& rvalue) const;
00231
00233     bool operator !=(const IdOslPadIterator& rvalue) const;
00234
00236     void Advance();
00237
00239     void operator ++();
00240
00241 private:
00242     class IdOslPadIteratorImpl* pimpl_;
00243 };
00244
00246 class IdOslResultImpl;
00247
00251 class SE_DLL_EXPORT IdOslResult
00252 {
00253 public:
00254     IdOslResult();
00255
00257     ~IdOslResult();
00258
00260     IdOslResult(const IdOslResult& copy);
00261
00263     IdOslResult& operator=(const IdOslResult& other);
00264
00265 public:
00267     bool GetVerdict() const;
00268
00270     void SetVerdict(bool verdict);
00271
00273     void PushPad(const IdOslPad& pad);
00274
00276     void Clear();
00277
00279     int32_t Size() const;
00280
00282     IdOslPadIterator OslPadBegin() const;
00283
00285     IdOslPadIterator OslPadEnd() const;
00286
00287 private:
00288     IdOslResultImpl* pimpl_;
00289 };
00290
00291 #ifdef WITH_IDFACE_INTERNAL
00292
00293 class IdFaceDescriptionImpl;
00294
00295 class SE_DLL_EXPORT IdFaceDescription {
00296 public:
00297
00298     IdFaceDescription();
00299
00300     IdFaceDescription(const IdFaceDescription& other);
00301
00302     IdFaceDescription& operator = (const IdFaceDescription& other);
00303
00309     static IdFaceDescription* CreateEmpty();
00310 }
```



```

00310
00311 public:
00312     ~IdFaceDescription();
00313
00314     IdFaceDescription* Clone() const;
00315
00316 public:
00317     bool FaceDetected() const;
00318
00319     const se::common::Rectangle& GetRectangle() const;
00320
00321     void SetRectangle(const se::common::Rectangle& rect);
00322
00323     std::map<std::string, std::vector<float>> GetKeypoints() const;
00324
00325     void SetKeypoints(std::map<std::string, std::vector<float>>& kp);
00326
00327     std::vector<float> GetFeatureVector() const;
00328
00329     void SetFeatureVector(std::vector<float>& features);
00330
00331     facerecog2::FaceRecogResult GetInternalResult() const;
00332
00333     void SetInternalResult(const facerecog2::FaceRecogResult& result);
00334
00335     IdFaceOrientation GetOrientation() const;
00336
00337     void SetOrientation(IdFaceOrientation orientation);
00338
00339     bool HasVisualizationImage() const;
00340
00341     const se::common::Image& GetVisualizationImage() const;
00342
00343     se::common::Image& GetMutableVisualizationImage();
00344
00345     void SetVisualizationImage(const se::common::Image& image);
00346
00347     int GetFeatureVectorSize() const;
00348
00349     float GetFeature(int index) const;
00350
00351     void SetFeature(int index, float value);
00352
00353     void ResizeFeatureVector(int size);
00354
00355 public:
00356     const IdFaceDescriptionImpl& GetImpl() const;
00357
00358     IdFaceDescriptionImpl& GetMutableImpl();
00359
00360     static IdFaceDescription* ConstructFromImpl(
00361         IdFaceDescriptionImpl* impl);
00362
00363 private:
00364     IdFaceDescription(IdFaceDescriptionImpl* impl);
00365
00366     IdFaceDescriptionImpl* pimpl_;
00367 };
00368 #endif
00369 } } // namespace se::id
00370
00371 #endif // IDENGINE_ID_FACE_RESULT_H_INCLUDED

```

2.7 id_face_session.h File Reference

id.engine face session declaration

Classes

- class [se::id::IdFaceSession](#)

The main processing class for the face matching and analysis functionality of Smart ID Engine.

2.7.1 Detailed Description

id.engine face session declaration

Definition in file [id_face_session.h](#).

2.8 id_face_session.h

```

00001  /*
00002  Copyright (c) 2016-2026, Smart Engines Service LLC
00003  All rights reserved.
00004  */
00005
00011  #ifndef IDENGINE_ID_FACE_SESSION_H_INCLUDED
00012  #define IDENGINE_ID_FACE_SESSION_H_INCLUDED
00013
00014  #include <secommon/se_common.h>
00015  #include <idengine/id_face_result.h>
00016
00017  namespace se { namespace id {
00018
00023  class SE_DLL_EXPORT IdFaceSession {
00024  public:
00026      virtual ~IdFaceSession() = default;
00027
00028      virtual const char* GetActivationRequest() = 0;
00029
00030      virtual void Activate(const char* activation_response) = 0;
00031
00032      virtual bool IsActivated() const = 0;
00033
00041      virtual IdFaceSimilarityResult GetSimilarity(
00042          const se::common::Image& face_image_a,
00043          const se::common::Image& face_image_b) const = 0;
00044
00051      virtual IdFaceSimilarityResult GetSimilarityWith(
00052          const se::common::Image& compare_image) const = 0;
00053
00058      virtual void AddFaceImage(const se::common::Image& face_image) = 0;
00059
00064      virtual void SetFaceToMatchWith(const se::common::Image& face_image) = 0;
00065
00071      virtual IdFaceRectsResult GetRects(const common::Image& image) const = 0;
00072
00077      virtual bool HasAccumulatedImage() const = 0;
00078
00084      virtual IdFaceLivenessResult GetLivenessResult() const = 0;
00085
00090      virtual unsigned int GetInstructionsCount() const = 0;
00091
00096      virtual unsigned int GetPushedImagesCount() const = 0;
00097
00102      virtual unsigned int GetAllowedNumberOfFailedInstructions() const = 0;
00103
00108      virtual unsigned int GetInitializerInstructionTime() const = 0;
00109
00114      virtual unsigned int GetPassAllInstruction() const = 0;
00115
00116  #ifdef WITH_IDFACE_INTERNAL
00121      virtual unsigned int GetInternallyAcceptedImagesCount() const = 0;
00122
00123      virtual IdFaceDescription Process(const se::common::Image& data) = 0;
00124  #endif
00128      virtual void Reset() = 0;
00129  };
00130
00131
00132 } } // namespace se::id
00133
00134 #endif // IDENGINE_ID_FACE_SESSION_H_INCLUDED

```

2.9 id_face_session_settings.h File Reference

id.engine face session settings class declaration

Classes

- class [se::id::IdFaceSessionSettings](#)

The class representing the settings of the face matching session.

2.9.1 Detailed Description

id.engine face session settings class declaration

Definition in file [id_face_session_settings.h](#).

2.10 id_face_session_settings.h

```

00001  /*
00002  Copyright (c) 2016-2026, Smart Engines Service LLC
00003  All rights reserved.
00004  */
00005
00011  #ifndef IDENGINE_ID_FACE_SESSION_SETTINGS_H_INCLUDED
00012  #define IDENGINE_ID_FACE_SESSION_SETTINGS_H_INCLUDED
00013
00014  #include <secommon/se_common.h>
00015
00016  namespace se { namespace id {
00017
00018
00022  class SE_DLL_EXPORT IdFaceSessionSettings {
00023  public:
00025      virtual ~IdFaceSessionSettings() = default;
00026
00033      virtual IdFaceSessionSettings* Clone() const = 0;
00034
00035
00037      virtual int GetOptionsCount() const = 0;
00038
00040      virtual const char* GetOption(const char* option_name) const = 0;
00041
00043      virtual bool HasOption(const char* option_name) const = 0;
00044
00046      virtual void SetOption(const char* option_name, const char* option_value) = 0;
00047
00049      virtual void RemoveOption(const char* option_name) = 0;
00050
00052      virtual se::common::StringsMapIterator OptionsBegin() const = 0;
00053
00055      virtual se::common::StringsMapIterator OptionsEnd() const = 0;
00056
00058      virtual int GetSupportedLivenessInstructionsCount() const = 0;
00059
00061      virtual bool HasSupportedLivenessInstruction(const char* instruction) const = 0;
00062
00064      virtual const char* GetLivenessInstructionDescription(const char* instruction) const = 0;
00065
00067      virtual se::common::StringsMapIterator SupportedLivenessInstructionsBegin() const = 0;
00068
00070      virtual se::common::StringsMapIterator SupportedLivenessInstructionsEnd() const = 0;
00071  };
00072
00073
00074  } } // namespace se::id
00075
00076  #endif // IDENGINE_ID_FACE_SESSION_SETTINGS_H_INCLUDED

```

2.11 id_feedback.h File Reference

id.engine session feedback classes declaration

Classes

- class [se::id::IdFeedbackContainer](#)
The class representing the visual feedback container - a collection of named quadrangles in an image.
- class [se::id::IdFeedback](#)
Abstract interface for receiving Smart ID Engine callbacks. All callbacks must be implemented.

2.11.1 Detailed Description

id.engine session feedback classes declaration

Definition in file [id_feedback.h](#).

2.12 id_feedback.h

```

00001  /*
00002  Copyright (c) 2016-2026, Smart Engines Service LLC
00003  All rights reserved.
00004  */
00005
00011  #ifndef IDENGINE_ID_FEEDBACK_H_INCLUDED
00012  #define IDENGINE_ID_FEEDBACK_H_INCLUDED
00013
00014  #include <idengine/id_result.h>
00015  #include <secommon/se_geometry.h>
00016
00017  namespace se { namespace id {
00018
00023  class SE_DLL_EXPORT IdFeedbackContainer {
00024  public:
00026      ~IdFeedbackContainer();
00027
00029      IdFeedbackContainer();
00030
00032      IdFeedbackContainer(const IdFeedbackContainer& copy);
00033
00035      IdFeedbackContainer& operator =(const IdFeedbackContainer& other);
00036
00037  public:
00038
00040      int GetQuadranglesCount() const;
00041
00043      bool HasQuadrangle(const char* quad_name) const;
00044
00046      const se::common::Quadrangle& GetQuadrangle(const char* quad_name) const;
00047
00049      void SetQuadrangle(const char* quad_name, const se::common::Quadrangle& quad);
00050
00052      void RemoveQuadrangle(const char* quad_name);
00053
00055      se::common::QuadranglesMapIterator QuadranglesBegin() const;
00056
00058      se::common::QuadranglesMapIterator QuadranglesEnd() const;
00059
00060  private:
00061      class IdFeedbackContainerImpl* pimpl_;
00062  };
00063
00064
00069  class SE_DLL_EXPORT IdFeedback {
00070  public:
00072      virtual ~IdFeedback();
00073
00079      virtual void FeedbackReceived(
00080          const IdFeedbackContainer& feedback_container) = 0;
00081
00086      virtual void TemplateDetectionResultReceived(
00087          const IdTemplateDetectionResult& detection_result) = 0;
00088
00093      virtual void TemplateSegmentationResultReceived(
00094          const IdTemplateSegmentationResult& segmentation_result) = 0;
00095
00100      virtual void ResultReceived(const IdResult& result_received) = 0;
00101
00106      virtual void SessionEnded() = 0;
00107  };
00108
00109 } } // namespace se::id
00110
00111 #endif // IDENGINE_ID_FEEDBACK_H_INCLUDED

```

2.13 id_field_processing_session.h File Reference

id.engine field processing session declaration

Classes

- class [se::id::IdFieldProcessingSession](#)
The main processing class for Smart ID Engine field processing functionality.

2.13.1 Detailed Description

id.engine field processing session declaration

Definition in file [id_field_processing_session.h](#).

2.14 id_field_processing_session.h

```

00001  /*
00002  Copyright (c) 2016-2026, Smart Engines Service LLC
00003  All rights reserved.
00004  */
00005
00011  #ifndef IDENGINE_ID_FIELD_PROCESSING_SESSION_H_INCLUDED
00012  #define IDENGINE_ID_FIELD_PROCESSING_SESSION_H_INCLUDED
00013
00014  #include <secommon/se_common.h>
00015  #include <idengine/id_fields.h>
00016
00017  namespace se { namespace id {
00018
00023  class SE_DLL_EXPORT IdFieldProcessingSession {
00024  public:
00026      virtual ~IdFieldProcessingSession() = default;
00027
00028      virtual const char* GetActivationRequest() = 0;
00029
00030      virtual void Activate(const char* activation_response) = 0;
00031
00032      virtual bool IsActivated() const = 0;
00033
00038      virtual void Process() = 0;
00039
00040
00042      virtual int GetTextFieldsCount() const = 0;
00043
00045      virtual bool HasTextField(const char* field_name) const = 0;
00046
00048      virtual const IdTextField& GetTextField(const char* field_name) const = 0;
00049
00051      virtual void SetTextField(
00052          const char* field_name, const IdTextField& field) = 0;
00053
00055      virtual void RemoveTextField(const char* field_name) = 0;
00056
00058      virtual IdTextFieldsMapIterator TextFieldsBegin() const = 0;
00059
00061      virtual IdTextFieldsMapIterator TextFieldsEnd() const = 0;
00062
00063
00065      virtual int GetImageFieldsCount() const = 0;
00066
00068      virtual bool HasImageField(const char* field_name) const = 0;
00069
00071      virtual const IdImageField& GetImageField(const char* field_name) const = 0;
00072
00074      virtual void SetImageField(
00075          const char* field_name, const IdImageField& field) = 0;
00076
00078      virtual void RemoveImageField(const char* field_name) = 0;
00079
00081      virtual IdImageFieldsMapIterator ImageFieldsBegin() const = 0;
00082

```

```

00084     virtual IdImageFieldsMapIterator ImageFieldsEnd() const = 0;
00085
00086
00088     virtual int GetAnimatedFieldsCount() const = 0;
00089
00091     virtual bool HasAnimatedField(const char* field_name) const = 0;
00092
00094     virtual const IdAnimatedField& GetAnimatedField(const char* field_name) const = 0;
00095
00097     virtual void SetAnimatedField(
00098         const char* field_name, const IdAnimatedField& field) = 0;
00099
00101     virtual void RemoveAnimatedField(const char* field_name) = 0;
00102
00104     virtual IdAnimatedFieldsMapIterator AnimatedFieldsBegin() const = 0;
00105
00107     virtual IdAnimatedFieldsMapIterator AnimatedFieldsEnd() const = 0;
00108
00109
00111     virtual int GetCheckFieldsCount() const = 0;
00112
00114     virtual bool HasCheckField(const char* field_name) const = 0;
00115
00117     virtual const IdCheckField& GetCheckField(const char* field_name) const = 0;
00118
00120     virtual void SetCheckField(
00121         const char* field_name, const IdCheckField& field) = 0;
00122
00124     virtual void RemoveCheckField(const char* field_name) = 0;
00125
00127     virtual IdCheckFieldsMapIterator CheckFieldsBegin() const = 0;
00128
00130     virtual IdCheckFieldsMapIterator CheckFieldsEnd() const = 0;
00131
00132
00136     virtual void Reset() = 0;
00137 };
00138
00139
00140 } } // namespace se::id
00141
00142 #endif // IDENGINE_ID_FIELD_PROCESSING_SESSION_H_INCLUDED

```

2.15 id_field_processing_session_settings.h File Reference

id.engine field processing session settings class declaration

Classes

- class [se::id::IdFieldProcessingSessionSettings](#)
The class representing the settings of the field processing session.

2.15.1 Detailed Description

id.engine field processing session settings class declaration

Definition in file [id_field_processing_session_settings.h](#).

2.16 id_field_processing_session_settings.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef IDENGINE_ID_FIELD_PROCESSING_SESSION_SETTINGS_H_INCLUDED
00012 #define IDENGINE_ID_FIELD_PROCESSING_SESSION_SETTINGS_H_INCLUDED
00013
00014 #include <secommon/se_common.h>

```

```

00015
00016 namespace se { namespace id {
00017
00018
00022 class SE_DLL_EXPORT IdFieldProcessingSessionSettings {
00023 public:
00025     virtual ~IdFieldProcessingSessionSettings() = default;
00026
00033     virtual IdFieldProcessingSessionSettings* Clone() const = 0;
00034
00035
00037     virtual int GetSupportedFieldProcessorsCount() const = 0;
00038
00040     virtual bool HasSupportedFieldProcessor(
00041         const char* field_processor_name) const = 0;
00042
00045     virtual se::common::StringsSetIterator SupportedFieldProcessorsBegin() const = 0;
00046
00049     virtual se::common::StringsSetIterator SupportedFieldProcessorsEnd() const = 0;
00050
00051
00053     virtual const char* GetCurrentFieldProcessor() const = 0;
00054
00056     virtual void SetCurrentFieldProcessor(const char* field_processor_name) = 0;
00057
00058
00060     virtual int GetOptionsCount() const = 0;
00061
00063     virtual const char* GetOption(const char* option_name) const = 0;
00064
00066     virtual bool HasOption(const char* option_name) const = 0;
00067
00069     virtual void SetOption(const char* option_name, const char* option_value) = 0;
00070
00072     virtual void RemoveOption(const char* option_name) = 0;
00073
00075     virtual se::common::StringsMapIterator OptionsBegin() const = 0;
00076
00078     virtual se::common::StringsMapIterator OptionsEnd() const = 0;
00079 };
00080
00081
00082 } } // namespace se::id
00083
00084 #endif // IDENGINE_ID_FIELD_PROCESSING_SESSION_SETTINGS_H_INCLUDED

```

2.17 id_fields.h File Reference

id.engine field types declaration

Classes

- class [se::id::IdBaseFieldInfo](#)
The class representing the basic field information, which is present in any field object.
- class [se::id::IdTextField](#)
The class representing the recognition result of a text field.
- class [se::id::IdTextFieldsMapIterator](#)
A class representing the iterator for string->text field maps.
- class [se::id::IdImageField](#)
The class representing an image field.
- class [se::id::IdImageFieldsMapIterator](#)
The class representing the iterator to named image fields container.
- class [se::id::IdAnimatedField](#)
The class representing an animated field.
- class [se::id::IdAnimatedFieldsMapIterator](#)
The class representing the iterator to named animated fields container.
- class [se::id::IdCheckField](#)
The class representing the check field.
- class [se::id::IdCheckFieldsMapIterator](#)
The class representing the iterator to a named check fields collection.

Variables

- [IdFieldType_Text](#)
Text field.
- [IdFieldType_Image](#)
Image field.
- [IdFieldType_Animated](#)
Animated field.
- [IdCheckStatus_Undefined](#)
Undefined result.
- [IdCheckStatus_Passed](#)
Check is passed.

2.17.1 Detailed Description

id.engine field types declaration

Definition in file [id_fields.h](#).

2.18 id_fields.h

```

00001  /*
00002  Copyright (c) 2016-2026, Smart Engines Service LLC
00003  All rights reserved.
00004  */
00005
00011  #ifndef IDENGINE_ID_FIELDS_H_INCLUDED
00012  #define IDENGINE_ID_FIELDS_H_INCLUDED
00013
00014  #include <secommon/se_common.h>
00015
00016  namespace se { namespace id {
00017
00018
00022  enum SE_DLL_EXPORT IdFieldType {
00023      IdFieldType_Text,
00024      IdFieldType_Image,
00025      IdFieldType_Animated,
00026      IdFieldType_Check
00027  };
00028
00029
00034  class SE_DLL_EXPORT IdBaseFieldInfo {
00035  public:
00037      ~IdBaseFieldInfo();
00038
00045      IdBaseFieldInfo(bool is_accepted = false,
00046                      double confidence = 0.0);
00047
00049      IdBaseFieldInfo(const IdBaseFieldInfo& copy);
00050
00052      IdBaseFieldInfo& operator =(const IdBaseFieldInfo& other);
00053
00054  public:
00055
00057      bool GetIsAccepted() const;
00058
00060      void SetIsAccepted(bool is_accepted);
00061
00063      double GetConfidence() const;
00064
00066      void SetConfidence(double confidence);
00067
00068
00070      int GetAttributesCount() const;
00071
00073      const char* GetAttribute(const char* attr_name) const;
00074
00076      bool HasAttribute(const char* attr_name) const;
00077
00079      void SetAttribute(const char* attr_name, const char* attr_value);

```



```
00080
00082 void RemoveAttribute(const char* attr_name);
00083
00085 se::common::StringsMapIterator AttributesBegin() const;
00086
00088 se::common::StringsMapIterator AttributesEnd() const;
00089
00090 private:
00091     class IdBaseFieldInfoImpl* pimpl_;
00092 };
00093
00094
00098 class SE_DLL_EXPORT IdTextField {
00099 public:
00101     ~IdTextField();
00102
00104     IdTextField();
00105
00113     IdTextField(const char* name,
00114                 const se::common::OcrString& value,
00115                 bool is_accepted = false,
00116                 double confidence = 0.0);
00117
00125     IdTextField(const char* name,
00126                 const char* value,
00127                 bool is_accepted = false,
00128                 double confidence = 0.0);
00129
00131     IdTextField(const IdTextField& copy);
00132
00134     IdTextField& operator =(const IdTextField& other);
00135
00136 public:
00137
00139     const char* GetName() const;
00140
00142     void SetName(const char* name);
00143
00144
00146     const se::common::OcrString& GetValue() const;
00147
00149     void SetValue(const se::common::OcrString& value);
00150
00152     void SetValue(const char* value);
00153
00154
00156     const IdBaseFieldInfo& GetBaseFieldInfo() const;
00157
00159     IdBaseFieldInfo& GetMutableBaseFieldInfo();
00160
00161 private:
00162     class IdTextFieldImpl* pimpl_;
00163 };
00164
00165
00167 class IdTextFieldsMapIteratorImpl;
00168
00172 class SE_DLL_EXPORT IdTextFieldsMapIterator {
00173 private:
00175     IdTextFieldsMapIterator(const IdTextFieldsMapIteratorImpl& pimpl);
00176
00177 public:
00178
00180     ~IdTextFieldsMapIterator();
00181
00183     IdTextFieldsMapIterator(const IdTextFieldsMapIterator& other);
00184
00186     IdTextFieldsMapIterator& operator =(const IdTextFieldsMapIterator& other);
00187
00189     static IdTextFieldsMapIterator ConstructFromImpl(
00190         const IdTextFieldsMapIteratorImpl& pimpl);
00191
00192
00194     const char* GetKey() const;
00195
00197     const IdTextField& GetValue() const;
00198
00199
00201     bool Equals(const IdTextFieldsMapIterator& rvalue) const;
00202
00204     bool operator ==(const IdTextFieldsMapIterator& rvalue) const;
00205
00207     bool operator !=(const IdTextFieldsMapIterator& rvalue) const;
00208
00209
00211     void Advance();
00212
```

```

00214     void operator ++();
00215
00216 private:
00217     IdTextFieldsMapIteratorImpl* pimpl_;
00218 };
00219
00220
00224 class SE_DLL_EXPORT IdImageField {
00225 public:
00226
00228     ~IdImageField();
00229
00231     IdImageField();
00232
00240     IdImageField(const char* name,
00241                  const se::common::Image& value,
00242                  bool is_accepted = false,
00243                  double confidence = 0.0);
00244
00246     IdImageField(const IdImageField& copy);
00247
00249     IdImageField& operator =(const IdImageField& other);
00250
00251 public:
00252
00254     const char* GetName() const;
00255
00257     void SetName(const char* name);
00258
00259
00261     const se::common::Image& GetValue() const;
00262
00264     void SetValue(const se::common::Image& value);
00265
00266
00268     const IdBaseFieldInfo& GetBaseFieldInfo() const;
00269
00271     IdBaseFieldInfo& GetMutableBaseFieldInfo();
00272
00273 private:
00274     class IdImageFieldImpl* pimpl_;
00275 };
00276
00277
00279 class IdImageFieldsMapIteratorImpl;
00280
00284 class SE_DLL_EXPORT IdImageFieldsMapIterator {
00285 private:
00286
00288     IdImageFieldsMapIterator(const IdImageFieldsMapIteratorImpl& pimpl);
00289
00290 public:
00291
00293     ~IdImageFieldsMapIterator();
00294
00296     IdImageFieldsMapIterator(const IdImageFieldsMapIterator& other);
00297
00299     IdImageFieldsMapIterator& operator =(const IdImageFieldsMapIterator& other);
00300
00302     static IdImageFieldsMapIterator ConstructFromImpl(
00303         const IdImageFieldsMapIteratorImpl& pimpl);
00304
00305
00307     const char* GetKey() const;
00308
00310     const IdImageField& GetValue() const;
00311
00312
00314     bool Equals(const IdImageFieldsMapIterator& rvalue) const;
00315
00317     bool operator ==(const IdImageFieldsMapIterator& rvalue) const;
00318
00320     bool operator !=(const IdImageFieldsMapIterator& rvalue) const;
00321
00322
00324     void Advance();
00325
00327     void operator ++();
00328
00329 private:
00330     class IdImageFieldsMapIteratorImpl* pimpl_;
00331 };
00332
00333
00337 class SE_DLL_EXPORT IdAnimatedField {
00338 public:
00339

```

```

00341 ~IdAnimatedField();
00342
00344 IdAnimatedField();
00345
00352 IdAnimatedField(const char* name,
00353                 bool is_accepted = false,
00354                 double confidence = 0.0);
00355
00357 IdAnimatedField(const IdAnimatedField& copy);
00358
00360 IdAnimatedField& operator =(const IdAnimatedField& other);
00361
00362 public:
00363
00365 const char* GetName() const;
00366
00368 void SetName(const char* name);
00369
00370
00372 int GetFramesCount() const;
00373
00375 const se::common::Image& GetFrame(int frame_id) const;
00376
00378 void AppendFrame(const se::common::Image& frame);
00379
00381 void ClearFrames();
00382
00383
00385 const IdBaseFieldInfo& GetBaseFieldInfo() const;
00386
00388 IdBaseFieldInfo& GetMutableBaseFieldInfo();
00389
00390 private:
00391 class IdAnimatedFieldImpl* pimpl_;
00392 };
00393
00394
00396 class IdAnimatedFieldsMapIteratorImpl;
00397
00401 class SE_DLL_EXPORT IdAnimatedFieldsMapIterator {
00402 private:
00403
00405 IdAnimatedFieldsMapIterator(const IdAnimatedFieldsMapIteratorImpl& pimpl);
00406
00407 public:
00408
00410 ~IdAnimatedFieldsMapIterator();
00411
00413 IdAnimatedFieldsMapIterator(const IdAnimatedFieldsMapIterator& other);
00414
00416 IdAnimatedFieldsMapIterator& operator =(const IdAnimatedFieldsMapIterator& other);
00417
00419 static IdAnimatedFieldsMapIterator ConstructFromImpl(
00420     const IdAnimatedFieldsMapIteratorImpl& pimpl);
00421
00422
00424 const char* GetKey() const;
00425
00427 const IdAnimatedField& GetValue() const;
00428
00429
00431 bool Equals(const IdAnimatedFieldsMapIterator& rvalue) const;
00432
00434 bool operator ==(const IdAnimatedFieldsMapIterator& rvalue) const;
00435
00437 bool operator !=(const IdAnimatedFieldsMapIterator& rvalue) const;
00438
00439
00441 void Advance();
00442
00444 void operator ++();
00445
00446 private:
00447 class IdAnimatedFieldsMapIteratorImpl* pimpl_;
00448 };
00449
00450
00454 enum SE_DLL_EXPORT IdCheckStatus {
00455     IdCheckStatus_Undefined,
00456     IdCheckStatus_Passed,
00457     IdCheckStatus_Failed
00458 };
00459
00460
00464 class SE_DLL_EXPORT IdCheckField {
00465 public:
00466

```

```

00468 ~IdCheckField();
00469
00471 IdCheckField();
00472
00480 IdCheckField(const char* name,
00481              IdCheckStatus value,
00482              bool is_accepted = false,
00483              double confidence = 0.0);
00484
00486 IdCheckField(const IdCheckField& copy);
00487
00489 IdCheckField& operator =(const IdCheckField& other);
00490
00491 public:
00492
00494 const char* GetName() const;
00495
00497 void SetName(const char* name);
00498
00499 IdCheckStatus GetValue() const;
00501
00502 void SetValue(IdCheckStatus value);
00504
00505
00506
00508 const IdBaseFieldInfo& GetBaseFieldInfo() const;
00509
00511 IdBaseFieldInfo& GetMutableBaseFieldInfo();
00512
00513 private:
00514 class IdCheckFieldImpl* pimpl_;
00515 };
00516
00517
00519 class IdCheckFieldsMapIteratorImpl;
00520
00524 class SE_DLL_EXPORT IdCheckFieldsMapIterator {
00525 private:
00526
00528 IdCheckFieldsMapIterator(const IdCheckFieldsMapIteratorImpl& pimpl);
00529
00530 public:
00531
00533 ~IdCheckFieldsMapIterator();
00534
00536 IdCheckFieldsMapIterator(const IdCheckFieldsMapIterator& other);
00537
00539 IdCheckFieldsMapIterator& operator =(const IdCheckFieldsMapIterator& other);
00540
00541
00543 static IdCheckFieldsMapIterator ConstructFromImpl(
00544     const IdCheckFieldsMapIteratorImpl& pimpl);
00545
00546
00548 const char* GetKey() const;
00549
00551 const IdCheckField& GetValue() const;
00552
00553
00555 bool Equals(const IdCheckFieldsMapIterator& rvalue) const;
00556
00558 bool operator ==(const IdCheckFieldsMapIterator& rvalue) const;
00559
00561 bool operator !=(const IdCheckFieldsMapIterator& rvalue) const;
00562
00563
00565 void Advance();
00566
00568 void operator ++();
00569
00570 private:
00571 class IdCheckFieldsMapIteratorImpl* pimpl_;
00572 };
00573
00574
00575 } } // namespace se::id
00576
00577 #endif // IDENGINE_ID_FIELDS_H_INCLUDED

```

2.19 id_result.h File Reference

id.engine result classes declaration

Classes

- class [se::id::IdTemplateDetectionResult](#)
The class representing the result of page (template) detection.
- class [se::id::IdTemplateSegmentationResult](#)
The class representing the page (template) segmentation result.
- class [se::id::IdResult](#)
The class representing the document recognition result.

2.19.1 Detailed Description

id.engine result classes declaration

Definition in file [id_result.h](#).

2.20 id_result.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef IDENGINE_ID_RESULT_H_INCLUDED
00012 #define IDENGINE_ID_RESULT_H_INCLUDED
00013
00014 #include <idengine/id_fields.h>
00015 #include <secommon/se_common.h>
00016
00017 namespace se { namespace id {
00018
00019
00024 class SE_DLL_EXPORT IdTemplateDetectionResult {
00025 public:
00026
00028 ~IdTemplateDetectionResult();
00029
00038 IdTemplateDetectionResult(const char* tpl_name,
00039                           const se::common::Quadrangle& quadrangle,
00040                           bool is_accepted = false,
00041                           double confidence = 0.0,
00042                           const se::common::Size& standard_size = {});
00043
00045 IdTemplateDetectionResult(const IdTemplateDetectionResult& copy);
00046
00048 IdTemplateDetectionResult& operator =(
00049     const IdTemplateDetectionResult& other);
00050
00051 public:
00052
00054 const char* GetTemplateName() const;
00055
00057 void SetTemplateName(const char* name);
00058
00059
00061 const se::common::Quadrangle& GetQuadrangle() const;
00062
00064 void SetQuadrangle(const se::common::Quadrangle& quadrangle);
00065
00066
00068 bool GetIsAccepted() const;
00069
00071 void SetIsAccepted(bool is_accepted);
00072
00073
00075 double GetConfidence() const;
00076
00078 void SetConfidence(double confidence);
00079
00080
00082 const se::common::Size& GetStandardSize() const;
00083
00085 void SetStandardSize(const se::common::Size& standard_size);
00086
00087

```

```

00089 int GetAttributesCount() const;
00090
00092 const char* GetAttribute(const char* attr_name) const;
00093
00095 bool HasAttribute(const char* attr_name) const;
00096
00098 void SetAttribute(const char* attr_name, const char* attr_value);
00099
00101 void RemoveAttribute(const char* attr_name);
00102
00104 se::common::StringsMapIterator AttributesBegin() const;
00105
00107 se::common::StringsMapIterator AttributesEnd() const;
00108
00109 private:
00110     class IdTemplateDetectionResultImpl* pimpl_;
00111 };
00112
00113
00117 class SE_DLL_EXPORT IdTemplateSegmentationResult {
00118 public:
00119
00121     ~IdTemplateSegmentationResult();
00122
00128     IdTemplateSegmentationResult(bool is_accepted = false,
00129                                 double confidence = 0.0);
00130
00132     IdTemplateSegmentationResult(const IdTemplateSegmentationResult& copy);
00133
00135     IdTemplateSegmentationResult& operator =(
00136         const IdTemplateSegmentationResult& other);
00137
00138 public:
00139
00141     bool GetIsAccepted() const;
00142
00144     void SetIsAccepted(bool is_accepted);
00145
00146
00148     double GetConfidence() const;
00149
00151     void SetConfidence(double confidence);
00152
00153
00155     int GetRawFieldsCount() const;
00156
00158     bool HasRawField(const char* raw_field_name) const;
00159
00160
00162     const se::common::Quadrangle& GetRawFieldQuadrangle(
00163         const char* raw_field_name) const;
00164
00166     const se::common::Quadrangle& GetRawFieldTemplateQuadrangle(
00167         const char* raw_field_name) const;
00168
00170     void SetRawFieldQuadrangles(
00171         const char* raw_field_name,
00172         const se::common::Quadrangle& quadrangle,
00173         const se::common::Quadrangle& template_quadrangle);
00174
00176     void RemoveRawField(const char* raw_field_name);
00177
00180     se::common::QuadranglesMapIterator RawFieldQuadranglesBegin() const;
00183     se::common::QuadranglesMapIterator RawFieldQuadranglesEnd() const;
00184
00185
00188     se::common::QuadranglesMapIterator RawFieldTemplateQuadranglesBegin() const;
00189
00192     se::common::QuadranglesMapIterator RawFieldTemplateQuadranglesEnd() const;
00193
00194 private:
00195     class IdTemplateSegmentationResultImpl* pimpl_;
00196 };
00197
00199 class IdResultImpl;
00200
00201
00205 class SE_DLL_EXPORT IdResult {
00206 public:
00208     ~IdResult();
00209
00211     IdResult(bool is_terminal = false);
00212
00214     IdResult(const IdResult& copy);
00215
00217     IdResult& operator =(const IdResult& other);
00218

```

```
00219 public:
00220
00222     const char* GetDocumentType() const;
00223
00225     void SetDocumentType(const char* document_type);
00226
00227
00229     int GetTemplateDetectionResultsCount() const;
00230
00232     const IdTemplateDetectionResult& GetTemplateDetectionResult(
00233         int result_id) const;
00234
00236     void AppendTemplateDetectionResult(
00237         const IdTemplateDetectionResult& result);
00238
00240     void ClearTemplateDetectionResults();
00241
00242
00244     int GetTemplateSegmentationResultsCount() const;
00245
00247     const IdTemplateSegmentationResult& GetTemplateSegmentationResult(
00248         int result_id) const;
00249
00251     void AppendTemplateSegmentationResult(
00252         const IdTemplateSegmentationResult& result);
00253
00255     void ClearTemplateSegmentationResults();
00256
00257
00259     bool GetIsTerminal() const;
00260
00262     void SetIsTerminal(bool is_terminal);
00263
00264
00266     const se::common::StringsSet& GetSeenTemplates() const;
00267
00269     const se::common::StringsSet& GetTerminalTemplates() const;
00270
00271
00273     int GetTextFieldsCount() const;
00274
00276     bool HasTextField(const char* field_name) const;
00277
00279     const IdTextField& GetTextField(const char* field_name) const;
00280
00282     void SetTextField(const char* field_name, const IdTextField& field);
00283
00285     void RemoveTextField(const char* field_name);
00286
00288     IdTextFieldsMapIterator TextFieldsBegin() const;
00289
00291     IdTextFieldsMapIterator TextFieldsEnd() const;
00292
00293
00295     int GetImageFieldsCount() const;
00296
00298     bool HasImageField(const char* field_name) const;
00299
00301     const IdImageField& GetImageField(const char* field_name) const;
00302
00304     void SetImageField(const char* field_name, const IdImageField& field);
00305
00307     void RemoveImageField(const char* field_name);
00308
00310     IdImageFieldsMapIterator ImageFieldsBegin() const;
00311
00313     IdImageFieldsMapIterator ImageFieldsEnd() const;
00314
00315
00317     int GetAnimatedFieldsCount() const;
00318
00320     bool HasAnimatedField(const char* field_name) const;
00321
00323     const IdAnimatedField& GetAnimatedField(const char* field_name) const;
00324
00326     void SetAnimatedField(const char* field_name, const IdAnimatedField& field);
00327
00329     void RemoveAnimatedField(const char* field_name);
00330
00332     IdAnimatedFieldsMapIterator AnimatedFieldsBegin() const;
00333
00335     IdAnimatedFieldsMapIterator AnimatedFieldsEnd() const;
00336
00337
00339     int GetCheckFieldsCount() const;
00340
00342     bool HasCheckField(const char* field_name) const;
```

```
00343
00345     const IdCheckField& GetCheckField(const char* field_name) const;
00346
00348     void SetCheckField(const char* field_name, const IdCheckField& field);
00349
00351     void RemoveCheckField(const char* field_name);
00352
00354     IdCheckFieldsMapIterator CheckFieldsBegin() const;
00355
00357     IdCheckFieldsMapIterator CheckFieldsEnd() const;
00358
00359
00361     int GetForensicTextFieldsCount() const;
00362
00364     bool HasForensicTextField(const char* field_name) const;
00365
00367     const IdTextField& GetForensicTextField(const char* field_name) const;
00368
00370     void SetForensicTextField(const char* field_name, const IdTextField& field);
00371
00373     void RemoveForensicTextField(const char* field_name);
00374
00376     IdTextFieldsMapIterator ForensicTextFieldsBegin() const;
00377
00379     IdTextFieldsMapIterator ForensicTextFieldsEnd() const;
00380
00381
00383     int GetForensicImageFieldsCount() const;
00384
00386     bool HasForensicImageField(const char* field_name) const;
00387
00389     const IdImageField& GetForensicImageField(const char* field_name) const;
00390
00392     void SetForensicImageField(const char* field_name, const IdImageField& field);
00393
00395     void RemoveForensicImageField(const char* field_name);
00396
00398     IdImageFieldsMapIterator ForensicImageFieldsBegin() const;
00399
00401     IdImageFieldsMapIterator ForensicImageFieldsEnd() const;
00402
00403
00405     int GetForensicAnimatedFieldsCount() const;
00406
00408     bool HasForensicAnimatedField(const char* field_name) const;
00409
00411     const IdAnimatedField& GetForensicAnimatedField(const char* field_name) const;
00412
00414     void SetForensicAnimatedField(
00415         const char* field_name, const IdAnimatedField& field);
00416
00418     void RemoveForensicAnimatedField(const char* field_name);
00419
00421     IdAnimatedFieldsMapIterator ForensicAnimatedFieldsBegin() const;
00422
00424     IdAnimatedFieldsMapIterator ForensicAnimatedFieldsEnd() const;
00425
00426
00428     int GetForensicCheckFieldsCount() const;
00429
00431     bool HasForensicCheckField(const char* field_name) const;
00432
00434     const IdCheckField& GetForensicCheckField(const char* field_name) const;
00435
00437     void SetForensicCheckField(const char* field_name, const IdCheckField& field);
00438
00440     void RemoveForensicCheckField(const char* field_name);
00441
00443     IdCheckFieldsMapIterator ForensicCheckFieldsBegin() const;
00444
00446     IdCheckFieldsMapIterator ForensicCheckFieldsEnd() const;
00447
00448
00450     int GetRawTextFieldsCount() const;
00451
00453     bool HasRawTextField(const char* field_name) const;
00454
00456     const IdTextField& GetRawTextField(const char* field_name) const;
00457
00459     void SetRawTextField(const char* field_name, const IdTextField& field);
00460
00462     void RemoveRawTextField(const char* field_name);
00463
00465     IdTextFieldsMapIterator RawTextFieldsBegin() const;
00466
00468     IdTextFieldsMapIterator RawTextFieldsEnd() const;
00469
```



```

00470
00472 int GetRawImageFieldsCount() const;
00473
00475 bool HasRawImageField(const char* field_name) const;
00476
00478 const IdImageField& GetRawImageField(const char* field_name) const;
00479
00481 void SetRawImageField(const char* field_name, const IdImageField& field);
00482
00484 void RemoveRawImageField(const char* field_name);
00485
00487 IdImageFieldsMapIterator RawImageFieldsBegin() const;
00488
00490 IdImageFieldsMapIterator RawImageFieldsEnd() const;
00491
00492
00494 int GetCorrespondingRawFieldsCount(const char* field_name) const;
00495
00498 bool HasCorrespondingRawField(
00499     const char* field_name, const char* raw_field_name) const;
00500
00503 se::common::StringsSetIterator CorrespondingRawFieldNamesBegin(
00504     const char* field_name) const;
00505
00508 se::common::StringsSetIterator CorrespondingRawFieldNamesEnd(
00509     const char* field_name) const;
00510
00511
00513 int GetCorrespondingFieldsCount(const char* raw_field_name) const;
00514
00517 bool HasCorrespondingField(
00518     const char* raw_field_name, const char* field_name) const;
00519
00522 se::common::StringsSetIterator CorrespondingFieldNamesBegin(
00523     const char* raw_field_name) const;
00524
00527 se::common::StringsSetIterator CorrespondingFieldNamesEnd(
00528     const char* raw_field_name) const;
00529
00530
00532 const IdResultImpl& GetImpl() const;
00533
00535 IdResultImpl& GetMutableImpl();
00536
00537 private:
00538 IdResultImpl* pimpl_;
00539 };
00540
00541
00542 } } // namespace se::id
00543
00544 #endif // IDENGINE_ID_RESULT_H_INCLUDED

```

2.21 id_session.h File Reference

id.engine session declaration

Classes

- class [se::id::IdSession](#)

The main processing class for the Smart ID Engine document recognition functionality.

2.21.1 Detailed Description

id.engine session declaration

Definition in file [id_session.h](#).

2.22 id_session.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef IDENGINE_ID_SESSION_H_INCLUDED
00012 #define IDENGINE_ID_SESSION_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <idengine/id_result.h>
00016
00017 namespace se { namespace id {
00018
00019
00024 class SE_DLL_EXPORT IdSession {
00025 public:
00026
00028     virtual ~IdSession() = default;
00029
00034     virtual const char* GetActivationRequest() = 0;
00035
00040     virtual void Activate(const char* activation_response) = 0;
00041
00046     virtual bool IsActivated() const = 0;
00047
00053     virtual const IdResult& Process(const se::common::Image& image) = 0;
00054
00060     virtual const IdResult& Process(const se::common::ByteString& data) = 0;
00061
00063     virtual const IdResult& GetCurrentResult() const = 0;
00064
00066     virtual bool IsResultTerminal() const = 0;
00067
00069     virtual void Reset() = 0;
00070 };
00071
00072
00073 } } // namespace se::id
00074
00075 #endif // IDENGINE_ID_SESSION_H_INCLUDED

```

2.23 id_session_settings.h File Reference

id.engine session settings class declaration

Classes

- class [se::id::IdSessionSettings](#)

The class representing the session settings for the Smart ID Engine document recognition functionality.

2.23.1 Detailed Description

id.engine session settings class declaration

Definition in file [id_session_settings.h](#).

2.24 id_session_settings.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef IDENGINE_ID_SESSION_SETTINGS_H_INCLUDED
00012 #define IDENGINE_ID_SESSION_SETTINGS_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <idengine/id_document_info.h>
00016 #include <idengine/id_fields.h>
00017
00018 namespace se { namespace id {
00019
00020
00025 class SE_DLL_EXPORT IdSessionSettings {
00026 public:
00027
00029     virtual ~IdSessionSettings() = default;
00030
00037     virtual IdSessionSettings* Clone() const = 0;
00038
00039
00041     virtual int GetOptionsCount() const = 0;
00042
00044     virtual const char* GetOption(const char* option_name) const = 0;
00045
00047     virtual bool HasOption(const char* option_name) const = 0;
00048
00050     virtual void SetOption(const char* option_name, const char* option_value) = 0;
00051
00053     virtual void RemoveOption(const char* option_name) = 0;
00054
00056     virtual se::common::StringsMapIterator OptionsBegin() const = 0;
00057
00059     virtual se::common::StringsMapIterator OptionsEnd() const = 0;
00060
00061
00063     virtual int GetSupportedModesCount() const = 0;
00064
00066     virtual bool HasSupportedMode(const char* mode_name) const = 0;
00067
00069     virtual se::common::StringsSetIterator SupportedModesBegin() const = 0;
00070
00072     virtual se::common::StringsSetIterator SupportedModesEnd() const = 0;
00073
00075     virtual const char* GetCurrentMode() const = 0;
00076
00078     virtual void SetCurrentMode(const char* mode_name) = 0;
00079
00080
00082     virtual int GetInternalEnginesCount() const = 0;
00083
00086     virtual bool HasInternalEngine(const char* engine_name) const = 0;
00087
00090     virtual se::common::StringsSetIterator InternalEngineNamesBegin() const = 0;
00091
00094     virtual se::common::StringsSetIterator InternalEngineNamesEnd() const = 0;
00095
00098     virtual int GetSupportedDocumentTypesCount(const char* engine_name) const = 0;
00099
00102     virtual bool HasSupportedDocumentType(
00103         const char* engine_name, const char* doc_name) const = 0;
00104
00107     virtual se::common::StringsSetIterator SupportedDocumentTypesBegin(
00108         const char* engine_name) const = 0;
00109
00112     virtual se::common::StringsSetIterator SupportedDocumentTypesEnd(
00113         const char* engine_name) const = 0;
00114
00115
00117     virtual int GetEnabledDocumentTypesCount() const = 0;
00118
00120     virtual bool HasEnabledDocumentType(const char* doc_name) const = 0;
00121
00124     virtual se::common::StringsSetIterator EnabledDocumentTypesBegin() const = 0;
00127     virtual se::common::StringsSetIterator EnabledDocumentTypesEnd() const = 0;
00128
00129
00141     virtual void AddEnabledDocumentTypes(const char* doc_type_mask) = 0;
00142
00150     virtual void RemoveEnabledDocumentTypes(const char* doc_type_mask) = 0;
00151
00152
00154     virtual const IdDocumentInfo& GetDocumentInfo(const char* doc_name) const = 0;

```

```
00155
00156
00159 virtual int GetSupportedFieldsCount(const char* doc_name) const = 0;
00160
00163 virtual bool HasSupportedField(const char* doc_name,
00164                               const char* field_name) const = 0;
00165
00168 virtual se::common::StringsSetIterator SupportedFieldsBegin(
00169     const char* doc_name) const = 0;
00170
00173 virtual se::common::StringsSetIterator SupportedFieldsEnd(
00174     const char* doc_name) const = 0;
00175
00178 virtual IdFieldType GetFieldType(const char* doc_name,
00179                                  const char* field_name) const = 0;
00180
00181
00184 virtual int GetEnabledFieldsCount(const char* doc_name) const = 0;
00185
00188 virtual bool HasEnabledField(const char* doc_name,
00189                              const char* field_name) const = 0;
00190
00193 virtual se::common::StringsSetIterator EnabledFieldsBegin(
00194     const char* doc_name) const = 0;
00195
00198 virtual se::common::StringsSetIterator EnabledFieldsEnd(
00199     const char* doc_name) const = 0;
00200
00202 virtual void EnableField(const char* doc_name,
00203                          const char* field_name) = 0;
00204
00206 virtual void DisableField(const char* doc_name,
00207                           const char* field_name) = 0;
00208
00209
00211 virtual bool IsForensicsEnabled() const = 0;
00212
00214 virtual void EnableForensics() = 0;
00215
00217 virtual void DisableForensics() = 0;
00218
00219
00223 virtual int GetSupportedForensicFieldsCount(const char* doc_name) const = 0;
00224
00228 virtual bool HasSupportedForensicField(
00229     const char* doc_name, const char* field_name) const = 0;
00230
00234 virtual se::common::StringsSetIterator SupportedForensicFieldsBegin(
00235     const char* doc_name) const = 0;
00236
00240 virtual se::common::StringsSetIterator SupportedForensicFieldsEnd(
00241     const char* doc_name) const = 0;
00242
00243
00246 virtual IdFieldType GetForensicFieldType(
00247     const char* doc_name, const char* field_name) const = 0;
00248
00249
00253 virtual int GetEnabledForensicFieldsCount(const char* doc_name) const = 0;
00254
00258 virtual bool HasEnabledForensicField(
00259     const char* doc_name, const char* field_name) const = 0;
00260
00264 virtual se::common::StringsSetIterator EnabledForensicFieldsBegin(
00265     const char* doc_name) const = 0;
00266
00270 virtual se::common::StringsSetIterator EnabledForensicFieldsEnd(
00271     const char* doc_name) const = 0;
00272
00276 virtual void EnableForensicField(
00277     const char* doc_name, const char* field_name) = 0;
00278
00282 virtual void DisableForensicField(
00283     const char* doc_name, const char* field_name) = 0;
00284
00285
00288 virtual se::common::StringsSetIterator PermissiblePrefixDocMasksBegin() = 0;
00291 virtual se::common::StringsSetIterator PermissiblePrefixDocMasksEnd() = 0;
00292 };
00293
00294
00295 } } // namespace se::id
00296
00297 #endif // IDENGINE_ID_SESSION_SETTINGS_H_INCLUDED
```

2.25 se_common.h File Reference

Include all interface headers of secommon library.

2.25.1 Detailed Description

Include all interface headers of secommon library.

Definition in file [se_common.h](#).

2.26 se_common.h

```
00001  /*
00002  Copyright (c) 2016-2026, Smart Engines Service LLC
00003  All rights reserved.
00004  */
00005
00012  #ifndef SECOMMON_SE_COMMON_H_INCLUDED
00013  #define SECOMMON_SE_COMMON_H_INCLUDED
00014
00015  #include <secommon/se_export_defs.h>
00016  #include <secommon/se_serialization.h>
00017  #include <secommon/se_string.h>
00018  #include <secommon/se_strings_iterator.h>
00019  #include <secommon/se_strings_set.h>
00020  #include <secommon/se_exception.h>
00021  #include <secommon/se_geometry.h>
00022  #include <secommon/se_image.h>
00023
00024  #endif // SECOMMON_SE_COMMON_H_INCLUDED
```

2.27 se_exception.h File Reference

Exception classes for secommon library.

Classes

- class [se::common::BaseException](#)
BaseException class - base class for all SE exeptions. Cannot be created directly.
- class [se::common::InvalidKeyException](#)
InvalidKeyException: thrown if to an associative container the access is performed with an invalid or a non-existent key, or if the access to a list is performed with an invalid or out-of-range index.
- class [se::common::NotSupportedException](#)
NotSupportedException: thrown when trying to access a method which given the current state or given the passed arguments is not supported in the current version of the library or is not supported at all by design.
- class [se::common::FileSystemException](#)
FileSystemException: thrown if an attempt is made to read from a non-existent file, or other file-system related IO error.
- class [se::common::UninitializedObjectException](#)
UninitializedObjectException: thrown if an attempt is made to access a non-existent or non-initialized object.
- class [se::common::InvalidArgumentException](#)
InvalidArgumentException: thrown if a method is called with invalid input parameters.
- class [se::common::MemoryException](#)
MemoryException: thrown if an allocation is attempted with insufficient RAM.
- class [se::common::InvalidStateException](#)
InvalidStateException: thrown if an error occurs within the system in relation to an incorrect internal state of the system objects.
- class [se::common::InternalException](#)
InternalException: thrown if an unknown error occurs or if the error occurs within internal system components.

2.27.1 Detailed Description

Exception classes for secommon library.

Definition in file [se_exception.h](#).

2.28 se_exception.h

```

00001  /*
00002  Copyright (c) 2016-2026, Smart Engines Service LLC
00003  All rights reserved.
00004  */
00005
00011  #ifndef SECOMMON_SE_EXCEPTION_H_INCLUDED
00012  #define SECOMMON_SE_EXCEPTION_H_INCLUDED
00013
00014  #include <secommon/se_export_defs.h>
00015
00016  namespace se { namespace common {
00017
00022  class SE_DLL_EXPORT BaseException {
00023  public:
00025      virtual ~BaseException();
00026
00028      BaseException(const BaseException& copy);
00029
00031      virtual const char* ExceptionName() const;
00032
00034      virtual const char* what() const;
00035
00036  protected:
00038      BaseException(const char* msg);
00039
00040  private:
00041      char* msg_;
00042  };
00043
00044
00050  class SE_DLL_EXPORT InvalidKeyException : public BaseException {
00051  public:
00053      InvalidKeyException(const char* msg);
00054
00056      InvalidKeyException(const InvalidKeyException& copy);
00057
00059      virtual ~InvalidKeyException() override = default;
00060
00062      virtual const char* ExceptionName() const override;
00063  };
00064
00065
00072  class SE_DLL_EXPORT NotSupportedException : public BaseException {
00073  public:
00075      NotSupportedException(const char* msg);
00076
00078      NotSupportedException(const NotSupportedException& copy);
00079
00081      virtual ~NotSupportedException() override = default;
00082
00084      virtual const char* ExceptionName() const override;
00085  };
00086
00087
00092  class SE_DLL_EXPORT FileSystemException : public BaseException {
00093  public:
00095      FileSystemException(const char* msg);
00096
00098      FileSystemException(const FileSystemException& copy);
00099
00101      virtual ~FileSystemException() override = default;
00102
00104      virtual const char* ExceptionName() const override;
00105  };
00106
00107
00112  class SE_DLL_EXPORT UninitializedObjectException : public BaseException {
00113  public:
00115      UninitializedObjectException(const char* msg);
00116
00118      UninitializedObjectException(const UninitializedObjectException& copy);
00119
00121      virtual ~UninitializedObjectException() override = default;

```

```

00122
00124     virtual const char* ExceptionName() const override;
00125 };
00126
00127
00132 class SE_DLL_EXPORT InvalidArgumentException : public BaseException {
00133 public:
00135     InvalidArgumentException(const char* msg);
00136
00138     InvalidArgumentException(const InvalidArgumentException& copy);
00139
00141     virtual ~InvalidArgumentException() override = default;
00142
00144     virtual const char* ExceptionName() const override;
00145 };
00146
00147
00152 class SE_DLL_EXPORT MemoryException : public BaseException {
00153 public:
00155     MemoryException(const char* msg);
00156
00158     MemoryException(const MemoryException& copy);
00159
00161     virtual ~MemoryException() override = default;
00162
00164     virtual const char* ExceptionName() const override;
00165 };
00166
00167
00172 class SE_DLL_EXPORT InvalidStateException : public BaseException {
00173 public:
00175     InvalidStateException(const char* msg);
00176
00178     InvalidStateException(const InvalidStateException& copy);
00179
00181     virtual ~InvalidStateException() override = default;
00182
00184     virtual const char* ExceptionName() const override;
00185 };
00186
00187
00192 class SE_DLL_EXPORT InternalException : public BaseException {
00193 public:
00195     InternalException(const char* msg);
00196
00198     InternalException(const InternalException& copy);
00199
00201     virtual ~InternalException() override = default;
00202
00204     virtual const char* ExceptionName() const override;
00205 };
00206
00207
00208 } } // namespace se::common
00209
00210 #endif // SECOMMON_SE_EXCEPTION_H_INCLUDED

```

2.29 se_export_defs.h File Reference

Export-related definitions for secommon library.

2.29.1 Detailed Description

Export-related definitions for secommon library.

Definition in file [se_export_defs.h](#).

2.30 se_export_defs.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005

```

```

00011 #ifndef SECOMMON_SE_EXPORT_DEFS_H_INCLUDED
00012 #define SECOMMON_SE_EXPORT_DEFS_H_INCLUDED
00013
00014 #if defined _WIN32 && SE_EXPORTS
00015 # define SE_DLL_EXPORT __declspec(dllexport)
00016 #else // defined _WIN32 && SE_EXPORTS
00017 # if defined(__clang__) || defined(__GNUC__)
00018 #  define SE_DLL_EXPORT __attribute__((visibility ("default")))
00019 # else // clang of gnu
00020 #  define SE_DLL_EXPORT
00021 # endif // clang of gnu
00022 #endif // defined _WIN32 && SE_EXPORTS
00023
00024 #endif // SECOMMON_SE_EXPORT_DEFS_H_INCLUDED

```

2.31 `se_geometry.h` File Reference

Basic geometric classes and procedures for secommon library.

Classes

- class [se::common::Rectangle](#)
Class representing a rectangle in an image.
- class [se::common::Point](#)
Class representing a point in an image.
- class [se::common::Size](#)
Class representing a size of the (rectangular) object.
- class [se::common::Quadrangle](#)
Class representing a quadrangle in an image.
- class [se::common::QuadranglesVectorIterator](#)
QuadranglesVectorIterator: iterator object for vector of quadrangles.
- class [se::common::QuadranglesMapIterator](#)
QuadranglesMapIterator: iterator object for maps of named quadrangles.
- class [se::common::RectanglesVectorIterator](#)
- class [se::common::Polygon](#)
Class representing a polygon in an image.
- class [se::common::ProjectiveTransform](#)
Class representing projective transformation of a plane.

2.31.1 Detailed Description

Basic geometric classes and procedures for secommon library.

Definition in file [se_geometry.h](#).

2.32 se_geometry.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef SECOMMON_SE_GEOMETRY_H_INCLUDED
00012 #define SECOMMON_SE_GEOMETRY_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015 #include <secommon/se_serialization.h>
00016
00017 namespace se { namespace common {
00018
00022 class SE_DLL_EXPORT Rectangle {
00023 public:
00025     Rectangle();
00026
00028     Rectangle(int x, int y, int width, int height);
00029
00031     void Serialize(Serializer& serializer) const;
00032
00034     void SerializeImpl(SerializerImplBase& serializer_impl) const;
00035
00036 public:
00037     int x;
00038     int y;
00039     int width;
00040     int height;
00041 };
00042
00043
00047 class SE_DLL_EXPORT Point {
00048 public:
00050     Point();
00051
00053     Point(double x, double y);
00054
00056     void Serialize(Serializer& serializer) const;
00057
00059     void SerializeImpl(SerializerImplBase& serializer_impl) const;
00060
00061 public:
00062     double x;
00063     double y;
00064 };
00065
00066
00070 class SE_DLL_EXPORT Size {
00071 public:
00073     Size();
00074
00076     Size(int width, int height);
00077
00079     void Serialize(Serializer& serializer) const;
00080
00082     void SerializeImpl(SerializerImplBase& serializer_impl) const;
00083
00084 public:
00085     int width;
00086     int height;
00087 };
00088
00089
00093 class SE_DLL_EXPORT Quadrangle {
00094 public:
00096     Quadrangle();
00097
00099     Quadrangle(const Point& a, const Point& b, const Point& c, const Point& d);
00100
00102     Point& operator[] (int index);
00103
00105     const Point& operator[] (int index) const;
00106
00108     const Point& GetPoint(int index) const;
00109
00111     Point& GetMutablePoint(int index);
00112
00114     void SetPoint(int index, const Point& p);
00115
00117     Rectangle GetBoundingRectangle() const;
00118
00120     void Serialize(Serializer& serializer) const;
00121
00123     void SerializeImpl(SerializerImplBase& serializer_impl) const;
00124

```

```

00125 private:
00126     Point pts_[4];
00127 };
00128
00130 class QuadranglesVectorIteratorImpl;
00131
00132
00136 class SE_DLL_EXPORT QuadranglesVectorIterator {
00137 private:
00139     QuadranglesVectorIterator(const QuadranglesVectorIteratorImpl& pimpl);
00140
00141 public:
00143     QuadranglesVectorIterator(const QuadranglesVectorIterator& other);
00144
00146     QuadranglesVectorIterator& operator =(const QuadranglesVectorIterator& other);
00147
00149     ~QuadranglesVectorIterator();
00150
00152     static QuadranglesVectorIterator ConstructFromImpl(
00153         const QuadranglesVectorIteratorImpl& pimpl);
00154
00156     const Quadrangle& GetValue() const;
00157
00159     bool Equals(const QuadranglesVectorIterator& rvalue) const;
00160
00162     bool operator ==(const QuadranglesVectorIterator& rvalue) const;
00163
00165     bool operator !=(const QuadranglesVectorIterator& rvalue) const;
00166
00168     void Advance();
00169
00171     void operator ++();
00172
00173 private:
00174     class QuadranglesVectorIteratorImpl* pimpl_;
00175 };
00176
00177
00179 class QuadranglesMapIteratorImpl;
00180
00184 class SE_DLL_EXPORT QuadranglesMapIterator {
00185 private:
00187     QuadranglesMapIterator(const QuadranglesMapIteratorImpl& pimpl);
00188
00189 public:
00191     QuadranglesMapIterator(const QuadranglesMapIterator& other);
00192
00194     QuadranglesMapIterator& operator =(const QuadranglesMapIterator& other);
00195
00197     ~QuadranglesMapIterator();
00198
00200     static QuadranglesMapIterator ConstructFromImpl(
00201         const QuadranglesMapIteratorImpl& pimpl);
00202
00204     const char* GetKey() const;
00205
00207     const Quadrangle& GetValue() const;
00208
00210     bool Equals(const QuadranglesMapIterator& rvalue) const;
00211
00213     bool operator ==(const QuadranglesMapIterator& rvalue) const;
00214
00216     bool operator !=(const QuadranglesMapIterator& rvalue) const;
00217
00219     void Advance();
00220
00222     void operator ++();
00223
00224 private:
00225     class QuadranglesMapIteratorImpl* pimpl_;
00226 };
00227
00228 class RectanglesVectorIteratorImpl;
00229
00230 class SE_DLL_EXPORT RectanglesVectorIterator {
00231 private:
00233     RectanglesVectorIterator(const RectanglesVectorIteratorImpl& pimpl);
00234
00235 public:
00237     RectanglesVectorIterator(const RectanglesVectorIterator& other);
00238
00240     RectanglesVectorIterator& operator =(const RectanglesVectorIterator& other);
00241
00243     ~RectanglesVectorIterator();
00244
00246     static RectanglesVectorIterator ConstructFromImpl(
00247         const RectanglesVectorIteratorImpl& pimpl);

```

```
00248
00250     const Rectangle& GetValue() const;
00251
00253     bool Equals(const RectanglesVectorIterator& rvalue) const;
00254
00256     bool operator ==(const RectanglesVectorIterator& rvalue) const;
00257
00259     bool operator !=(const RectanglesVectorIterator& rvalue) const;
00260
00262     void Advance();
00263
00265     void operator ++();
00266
00267 private:
00268     class RectanglesVectorIteratorImpl* pimpl_;
00269 };
00270
00274 class SE_DLL_EXPORT Polygon {
00275 public:
00277     Polygon();
00278
00280     Polygon(const Point* points, int points_count);
00281
00283     Polygon(const Polygon& other);
00284
00286     Polygon& operator =(const Polygon& other);
00287
00289     ~Polygon();
00290
00292     int GetPointsCount() const;
00293
00295     const Point* GetPoints() const;
00296
00298     Point& operator [](int index);
00299
00301     const Point& operator [](int index) const;
00302
00304     const Point& GetPoint(int index) const;
00305
00307     Point& GetMutablePoint(int index);
00308
00310     void SetPoint(int index, const Point& p);
00311
00315     void Resize(int size);
00316
00318     Rectangle GetBoundingRectangle() const;
00319
00321     void Serialize(Serializer& serializer) const;
00322
00324     void SerializeImpl(SerializerImplBase& serializer_impl) const;
00325
00326 private:
00327     int pts_cnt_;
00328     Point* pts_;
00329 };
00330
00331
00335 class SE_DLL_EXPORT ProjectiveTransform {
00336 public:
00337     using Raw2dArrayType = double[3][3];
00338
00339 public:
00340
00348     static bool CanCreate(const Quadrangle& src_quad, const Quadrangle& dst_quad);
00349
00358     static bool CanCreate(const Quadrangle& src_quad, const Size& dst_size);
00359
00364     static ProjectiveTransform* Create();
00365
00373     static ProjectiveTransform* Create(
00374         const Quadrangle& src_quad,
00375         const Quadrangle& dst_quad);
00376
00384     static ProjectiveTransform* Create(
00385         const Quadrangle& src_quad,
00386         const Size& dst_size);
00387
00393     static ProjectiveTransform* Create(const Raw2dArrayType& coeffs);
00394
00395 public:
00397     virtual ~ProjectiveTransform() = default;
00398
00400     virtual ProjectiveTransform* Clone() const = 0;
00401
00403     virtual Point TransformPoint(const Point& p) const = 0;
00404
00406     virtual Quadrangle TransformQuad(const Quadrangle& q) const = 0;
```

```

00407
00409     virtual Polygon TransformPolygon(const Polygon& poly) const = 0;
00410
00412     virtual bool IsInvertable() const = 0;
00413
00415     virtual void Invert() = 0;
00416
00418     virtual ProjectiveTransform* CloneInverted() const = 0;
00419
00421     virtual const Raw2dArrayType& GetRawCoeffs() const = 0;
00422
00424     virtual Raw2dArrayType& GetMutableRawCoeffs() = 0;
00425
00427     virtual void Serialize(Serializer& serializer) const = 0;
00428 };
00429
00430
00431 } } // namespace se::common
00432
00433 #endif // SECOMMON_SE_GEOMETRY_H_INCLUDED

```

2.33 se_image.h File Reference

secommon library Image

Classes

- class [se::common::YUVDimensions](#)
The *YUVDimensions* struct - extended YUV parameters.
- class [se::common::Image](#)
Class representing bitmap image.

Variables

- [IPF_G](#) = 0
Greyscale.
- [IPF_GA](#)
Greyscale + Alpha.
- [IPF_AG](#)
Alpha + Greyscale.
- [IPF_RGB](#)
RGB.
- [IPF_BGR](#)
BGR.
- [IPF_BGRA](#)
BGR + Alpha.
- [IPF_ARGB](#)
Alpha + RGB.
- [YUVTYPE_UNDEFINED](#) = 0
No format.
- [YUVTYPE_NV21](#) = 1
NV 21.

2.33.1 Detailed Description

secommon library Image

Definition in file [se_image.h](#).

2.34 se_image.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef SECOMMON_SE_IMAGE_H_INCLUDED
00012 #define SECOMMON_SE_IMAGE_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015 #include <secommon/se_geometry.h>
00016 #include <secommon/se_serialization.h>
00017 #include <secommon/se_string.h>
00018
00019 #include <secommon/se_images_iterator.h>
00020
00021 namespace se { namespace common {
00022
00026 enum SE_DLL_EXPORT ImagePixelFormat {
00027     IPF_G = 0,
00028     IPF_GA,
00029     IPF_AG,
00030     IPF_RGB,
00031     IPF_BGR,
00032     IPF_BGRA,
00033     IPF_ARGB,
00034     IPF_RGBA
00035 };
00036
00040 enum SE_DLL_EXPORT YUVType {
00041     YUVTYPE_UNDEFINED = 0,
00042     YUVTYPE_NV21 = 1,
00043     YUVTYPE_420_888 = 2
00044 };
00045
00049 class SE_DLL_EXPORT YUVDimensions {
00050 public:
00052     YUVDimensions();
00053
00055     YUVDimensions(int y_pixel_stride,
00056                  int y_row_stride,
00057                  int u_pixel_stride,
00058                  int u_row_stride,
00059                  int v_pixel_stride,
00060                  int v_row_stride,
00061                  int width,
00062                  int height,
00063                  YUVType type);
00064
00065     int y_plane_pixel_stride;
00066     int y_plane_row_stride;
00067     int u_plane_pixel_stride;
00068     int u_plane_row_stride;
00069     int v_plane_pixel_stride;
00070     int v_plane_row_stride;
00071     int width;
00072     int height;
00073     YUVType type;
00074 };
00075
00079 class SE_DLL_EXPORT Image {
00080 public:
00086     static int GetNumberOfPages(const char* image_filename);
00087
00094     static MutableString GetImagePageName(const char *image_filename,
00095                                           int page_number);
00096
00102     static Image* CreateEmpty();
00103
00113     static Image* FromFile(
00114         const char* image_filename,
00115         const int page_number = 0,
00116         const Size& max_size = Size(25000, 25000));
00117
00128     static Image* FromFileBuffer(
00129         unsigned char* data,
00130         int data_length,
00131         const int page_number = 0,
00132         const Size& max_size = Size(25000, 25000));
00133
00147     static Image* FromBuffer(
00148         unsigned char* raw_data,
00149         int raw_data_length,
00150         int width,
00151         int height,
00152         int stride,

```

```

00153         int                channels);
00154
00168     static Image* FromBufferExtended(
00169         unsigned char* raw_data,
00170         int raw_data_length,
00171         int width,
00172         int height,
00173         int stride,
00174         ImagePixelFormat pixel_format,
00175         int bytes_per_channel);
00176
00186     static Image* FromYUVBuffer(
00187         unsigned char* yuv_data,
00188         int yuv_data_length,
00189         int width,
00190         int height);
00191
00192
00205     static Image* FromYUV(
00206         unsigned char* y_plane,
00207         int y_plane_length,
00208         unsigned char* u_plane,
00209         int u_plane_length,
00210         unsigned char* v_plane,
00211         int v_plane_length,
00212         const YUVDimensions& dimensions);
00213
00223     static Image* FromBase64Buffer(
00224         const char* base64_buffer,
00225         const int page_number = 0,
00226         const Size& max_size = Size(25000, 25000));
00227
00228 public:
00230     virtual ~Image() = default;
00231
00236     virtual int GetNumberOfLayers() const = 0;
00237
00243     virtual const Image& GetLayer(const char* name) const = 0;
00244
00250     virtual const Image* GetLayerPtr(const char* name) const = 0;
00251
00256     virtual ImagesMapIterator LayersBegin() const = 0;
00257
00262     virtual ImagesMapIterator LayersEnd() const = 0;
00263
00269     virtual bool HasLayer(const char* name) const = 0;
00270
00275     virtual bool HasLayers() const = 0;
00276
00281     virtual void RemoveLayer(const char* name) = 0;
00282
00284     virtual void RemoveLayers() = 0;
00285
00292     virtual void SetLayer(const char* name, const Image& image) = 0;
00293
00301     virtual void SetLayerWithOwnership(const char* name, Image* image) = 0;
00302
00303 public:
00309     virtual Image* CloneDeep() const = 0;
00310
00318     virtual Image* CloneShallow() const = 0;
00319
00321     virtual void Clear() = 0;
00322
00328     virtual int GetRequiredBufferLength() const = 0;
00329
00337     virtual int CopyToBuffer(unsigned char* buffer, int buffer_length) const = 0;
00338
00339 #ifndef STRICT_DATA_CONTAINMENT
00345     virtual void Save(const char* image_filename) const = 0;
00346 #endif // #ifndef STRICT_DATA_CONTAINMENT
00347
00353     virtual int GetRequiredBase64BufferLength() const = 0;
00354
00363     virtual int CopyBase64ToBuffer(
00364         char* out_buffer, int buffer_length) const = 0;
00365
00370     virtual MutableString GetBase64String() const = 0;
00371
00377     virtual double EstimateFocusScore(double quantile = 0.95) const = 0;
00378
00383     virtual void Resize(const Size& new_size) = 0;
00384
00391     virtual Image* CloneResized(const Size& new_size) const = 0;
00392
00399     virtual void Crop(const Quadrangle& quad) = 0;
00400

```

```

00408     virtual Image* CloneCropped(const Quadrangle& quad) const = 0;
00409
00415     virtual void Crop(const Quadrangle& quad, const Size& size) = 0;
00416
00424     virtual Image* CloneCropped(const Quadrangle& quad, const Size& size) const = 0;
00425
00430     virtual void Crop(const Rectangle& rect) = 0;
00431
00439     virtual Image* CloneCropped(const Rectangle& rect) const = 0;
00440
00450     virtual Image* CloneCroppedShallow(const Rectangle& rect) const = 0;
00451
00458     virtual void Mask(const Rectangle& rect, int pixel_expand = 0, double pixel_density = 0) = 0;
00459
00467     virtual Image* CloneMasked(const Rectangle& rect, int pixel_expand = 0) const = 0;
00468
00474     virtual void Mask(const Quadrangle& quad, int pixel_expand = 0, double pixel_density = 0) = 0;
00475
00484     virtual Image* CloneMasked(const Quadrangle& quad, int pixel_expand = 0) const = 0;
00485
00496     virtual void Fill(const Rectangle& rect, int ch1, int ch2 = 0, int ch3 = 0, int ch4 = 0, int
pixel_expand = 0) = 0;
00497
00510     virtual Image* CloneFilled(const Rectangle& rect, int ch1, int ch2 = 0, int ch3 = 0, int ch4 = 0,
int pixel_expand = 0) const = 0;
00511
00522     virtual void Fill(const Quadrangle& quad, int ch1, int ch2 = 0, int ch3 = 0, int ch4 = 0, int
pixel_expand = 0) = 0;
00523
00536     virtual Image* CloneFilled(const Quadrangle& quad, int ch1, int ch2 = 0, int ch3 = 0, int ch4 = 0,
int pixel_expand = 0) const = 0;
00537
00541     virtual void FlipVertical() = 0;
00542
00548     virtual Image* CloneFlippedVertical() const = 0;
00549
00553     virtual void FlipHorizontal() = 0;
00554
00560     virtual Image* CloneFlippedHorizontal() const = 0;
00561
00566     virtual void Rotate90(int times) = 0;
00567
00574     virtual Image* CloneRotated90(int times) const = 0;
00575
00579     virtual void AverageChannels() = 0;
00580
00586     virtual Image* CloneAveragedChannels() const = 0;
00587
00591     virtual void Invert() = 0;
00592
00598     virtual Image* CloneInverted() const = 0;
00599
00601     virtual int GetWidth() const = 0;
00602
00604     virtual int GetHeight() const = 0;
00605
00607     virtual Size GetSize() const = 0;
00608
00610     virtual int GetStride() const = 0;
00611
00613     virtual int GetChannels() const = 0;
00614
00616     virtual void* GetUnsafeBufferPtr() const = 0;
00617
00619     virtual bool IsMemoryOwner() const = 0;
00620
00622     virtual void ForceMemoryOwner() = 0;
00623
00625     virtual void Serialize(Serializer& serializer) const = 0;
00626 };
00627
00628 } } // namespace se::common
00629
00630
00631 #endif // SECOMMON_SE_IMAGE_H_INCLUDED

```

2.35 se_serialization.h File Reference

Facilities for serialization of objects.

Classes

- class [se::common::SerializationParameters](#)
Class representing serialization parameters.
- class [se::common::Serializer](#)
Class representing the serializer object.

2.35.1 Detailed Description

Facilities for serialization of objects.

Definition in file [se_serialization.h](#).

2.36 se_serialization.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef SECOMMON_SE_SERIALIZATION_H_INCLUDED
00012 #define SECOMMON_SE_SERIALIZATION_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015 #include <secommon/se_strings_iterator.h>
00016
00017 namespace se { namespace common {
00018
00020 class SerializationParametersImpl;
00021
00025 class SE_DLL_EXPORT SerializationParameters {
00026 public:
00028     SerializationParameters();
00030     ~SerializationParameters();
00032     SerializationParameters(const SerializationParameters& copy);
00034     SerializationParameters& operator =(
00035         const SerializationParameters& other);
00036
00037 public:
00044     bool HasIgnoredObjectType(const char* object_type) const;
00045
00050     void AddIgnoredObjectType(const char* object_type);
00051
00056     void RemoveIgnoredObjectType(const char* object_type);
00057
00059     se::common::StringsSetIterator IgnoredObjectTypesBegin() const;
00060
00062     se::common::StringsSetIterator IgnoredObjectTypesEnd() const;
00063
00069     bool HasIgnoredKey(const char* key) const;
00070
00075     void AddIgnoredKey(const char* key);
00076
00081     void RemoveIgnoredKey(const char* key);
00082
00084     se::common::StringsSetIterator IgnoredKeysBegin() const;
00085
00087     se::common::StringsSetIterator IgnoredKeysEnd() const;
00088
00089 public:
00091     const SerializationParametersImpl& GetImpl() const;
00092
00093 private:
00094     SerializationParametersImpl* pimpl_;
00095 };
00096
00097
00099 class SerializerImplBase;
00100
00104 class SE_DLL_EXPORT Serializer {
00105 public:
00107     virtual ~Serializer() = default;
00108
00110     virtual void Reset() = 0;
00111

```



```

00113     virtual const char* GetCStr() const = 0;
00114
00116     virtual const char* SerializerType() const = 0;
00117
00118 public:
00125     static Serializer* CreateJSONSerializer(
00126         const SerializationParameters& params);
00127 };
00128
00129
00130 } } // namespace se::common
00131
00132 #endif // SECOMMON_SE_SERIALIZATION_H_INCLUDED

```

2.37 se_string.h File Reference

OcrString and related classes for secommon library.

Classes

- class [se::common::MutableString](#)
Class representing a mutable, memory-owner string.
- class [se::common::OcrCharVariant](#)
Class representing a possible character recognition result.
- class [se::common::OcrPair](#)
- class [se::common::OcrChar](#)
Class representing an OCR information for a given recognized character.
- class [se::common::OcrString](#)
Class representing text string recognition result.
- class [se::common::ByteString](#)
Class representing byte string.

2.37.1 Detailed Description

OcrString and related classes for secommon library.

Definition in file [se_string.h](#).

2.38 se_string.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef SECOMMON_SE_STRING_H_INCLUDED
00012 #define SECOMMON_SE_STRING_H_INCLUDED
00013
00014 #include <cstdint>
00015 #include <cstdint>
00016 #include <secommon/se_export_defs.h>
00017 #include <secommon/se_geometry.h>
00018 #include <secommon/se_serialization.h>
00019
00020 namespace se { namespace common {
00021
00025 class SE_DLL_EXPORT MutableString {
00026 public:
00028     MutableString();
00029
00031     explicit MutableString(const char* c_str);
00032
00034     MutableString(const MutableString& other);

```

```
00035
00037 MutableString& operator =(const MutableString& other);
00038
00040 ~MutableString();
00041
00043 MutableString& operator +=(const MutableString& other);
00044
00046 MutableString operator +(const MutableString& other) const;
00047
00049 const char* GetCStr() const;
00050
00053 int GetLength() const;
00054
00056 void Serialize(Serializer& serializer) const;
00057
00059 void SerializeImpl(SerializerImplBase& serializer_impl) const;
00060
00061 private:
00062     int len_;
00063     char* buf_;
00064 };
00065
00066
00070 class SE_DLL_EXPORT OcrCharVariant {
00071 public:
00073     OcrCharVariant();
00074
00080     OcrCharVariant(const MutableString& utf8_char, float confidence);
00081
00087     OcrCharVariant(const char* utf8_char, float confidence);
00088
00090     ~OcrCharVariant() = default;
00091
00093     const char* GetCharacter() const;
00094
00096     void SetCharacter(const MutableString& utf8_char);
00097
00099     void SetCharacter(const char* utf8_char);
00100
00102     float GetConfidence() const;
00103
00105     void SetConfidence(float confidence);
00106
00108     float GetInternalScore() const;
00109
00111     void SetInternalScore(float internal_score);
00112
00114     void Serialize(Serializer& serializer) const;
00115
00117     void SerializeImpl(SerializerImplBase& serializer_impl) const;
00118
00119 private:
00120     MutableString char_;
00121     float conf_;
00122     float internal_score_;
00123 };
00124
00125
00126
00127 class SE_DLL_EXPORT OcrPair {
00128 public:
00130     OcrPair();
00131
00137     OcrPair(const MutableString& utf8_char, float confidence);
00138
00144     OcrPair(const char* utf8_char, float confidence);
00145
00151     OcrPair(const MutableString& utf8_char, int confidence);
00152
00158     OcrPair(const char* utf8_char, int confidence);
00159
00161     ~OcrPair() = default;
00162
00164     const char* GetCharacter() const;
00165
00167     void SetCharacter(const MutableString& utf8_char);
00168
00170     void SetCharacter(const char* utf8_char);
00171
00173     unsigned char GetConfidence() const;
00174
00176     void SetConfidence(float confidence);
00177
00179     void SetConfidence(int confidence);
00180
00182     void Serialize(Serializer& serializer) const;
00183
```

```

00185 void SerializeImpl(SerializerImplBase& serializer_impl) const;
00186
00187 private:
00188     MutableString char_;
00189     unsigned char conf_;
00190 };
00191
00192
00196 class SE_DLL_EXPORT OcrChar {
00197 public:
00199     OcrChar();
00200
00208     OcrChar(const OcrCharVariant* variants,
00209             int variants_count,
00210             bool is_highlighted,
00211             const Quadrangle& quad);
00212
00214     OcrChar(const OcrChar& other);
00215
00217     OcrChar& operator =(const OcrChar& other);
00218
00220     ~OcrChar();
00221
00223     int GetVariantsCount() const;
00224
00226     const OcrCharVariant* GetVariants() const;
00227
00229     OcrCharVariant& operator [](int index);
00230
00232     const OcrCharVariant& operator [](int index) const;
00233
00235     const OcrCharVariant& GetVariant(int index) const;
00236
00238     OcrCharVariant& GetMutableVariant(int index);
00239
00241     void SetVariant(int index, const OcrCharVariant& v);
00242
00244     void Resize(int size);
00245
00247     bool GetIsHighlighted() const;
00248
00250     void SetIsHighlighted(bool is_highlighted);
00251
00253     const Quadrangle& GetQuadrangle() const;
00254
00256     Quadrangle& GetMutableQuadrangle();
00257
00259     void SetQuadrangle(const Quadrangle& quad);
00260
00262     void SortVariants();
00263
00265     const OcrCharVariant& GetFirstVariant() const;
00266
00268     void Serialize(Serializer& serializer) const;
00269
00271     void SerializeImpl(SerializerImplBase& serializer_impl) const;
00272
00273 private:
00274     int vars_cnt_;
00275     OcrCharVariant* vars_;
00276     bool is_highlighted_;
00277     Quadrangle quad_;
00278 };
00279
00280
00282 class OcrStringImpl;
00283
00287 class SE_DLL_EXPORT OcrString {
00288 private:
00290     OcrString(const OcrStringImpl& ocr_string_impl);
00291
00292 public:
00294     OcrString();
00295
00301     OcrString(const char* utf8_str);
00302
00308     OcrString(const OcrChar* chars, int chars_count);
00309
00311     OcrString(const OcrString& other);
00312
00314     OcrString& operator =(const OcrString& other);
00315
00317     ~OcrString();
00318
00323     static OcrString ConstructFromImpl(const class OcrStringImpl& ocr_string_impl);
00324
00326     const class OcrStringImpl* GetOcrStringImplPtr() const;

```

```
00327
00329     int GetCharsCount() const;
00330
00332     const OcrChar* GetChars() const;
00333
00335     OcrChar& operator [] (int index);
00336
00338     const OcrChar& operator [] (int index) const;
00339
00341     const OcrChar& GetChar(int index) const;
00342
00344     OcrChar& GetMutableChar(int index);
00345
00347     void SetChar(int index, const OcrChar& chr);
00348
00350     void AppendChar(const OcrChar& chr);
00351
00353     void AppendString(const OcrString& str);
00354
00356     void Resize(int size);
00357
00359     const Quadrangle GetQuadrangleByIndex(int idx) const;
00360
00362     bool GetAcceptFlag() const;
00363
00365     bool GetCellAcceptFlagByIndex(int idx) const;
00366
00368     float GetBestVariantConfidenceByIndex(int idx) const;
00369
00371     void SortVariants();
00372
00374     MutableString GetFirstString() const;
00375
00377     void UnpackChars();
00378
00380     void RepackChars();
00381
00383     void Serialize(Serializer& serializer) const;
00384
00386     void SerializeImpl(SerializerImplBase& serializer_impl) const;
00387
00389     OcrPair* GetPairTable();
00390 private:
00391     OcrStringImpl* ocr_string_impl_;
00392 };
00393
00397 class SE_DLL_EXPORT ByteString {
00398 public:
00400     ByteString();
00401
00403     ~ByteString();
00404
00406     explicit ByteString(const unsigned char* bytes, size_t n);
00407
00409     ByteString(const ByteString &other);
00410
00412     ByteString &operator=(const ByteString &other);
00413
00415     void swap(ByteString &other) noexcept;
00416
00418     int GetLength() const noexcept;
00419
00421     int GetRequiredBase64BufferLength() const;
00422
00424     int CopyBase64ToBuffer(char* out_buffer, int buffer_length) const;
00425
00427     MutableString GetBase64String() const;
00428
00430     int GetRequiredHexBufferLength() const;
00431
00433     int CopyHexToBuffer(char* out_buffer, int buffer_length) const;
00434
00436     MutableString GetHexString() const;
00437
00438 private:
00439     size_t len_;
00440     uint8_t *buf_;
00441 };
00442
00443 } } // namespace se::common::
00444
00445 #endif // SECOMMON_SE_STRING_H_INCLUDED
```

2.39 se_strings_iterator.h File Reference

String iterators used in SE libraries.

Classes

- class [se::common::StringsVectorIterator](#)
Iterator to a vector-like collection of strings.
- class [se::common::StringsSetIterator](#)
Iterator to a set-like collection of strings.
- class [se::common::StringsMapIterator](#)
Iterator to a map from strings to strings.

2.39.1 Detailed Description

String iterators used in SE libraries.

Definition in file [se_strings_iterator.h](#).

2.40 se_strings_iterator.h

```

00001 /*
00002 Copyright (c) 2016-2026, Smart Engines Service LLC
00003 All rights reserved.
00004 */
00005
00011 #ifndef SECOMMON_SE_STRINGS_ITERATOR_H_INCLUDED
00012 #define SECOMMON_SE_STRINGS_ITERATOR_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015
00016 namespace se { namespace common {
00017
00018
00020 class StringsVectorIteratorImpl;
00021
00022
00026 class SE_DLL_EXPORT StringsVectorIterator {
00027 private:
00029     StringsVectorIterator(const StringsVectorIteratorImpl& pimpl);
00030
00031 public:
00033     StringsVectorIterator(const StringsVectorIterator& other);
00034
00036     StringsVectorIterator& operator =(const StringsVectorIterator& other);
00037
00039     ~StringsVectorIterator();
00040
00042     static StringsVectorIterator ConstructFromImpl(
00043         const StringsVectorIteratorImpl& pimpl);
00044
00046     const char* GetValue() const;
00047
00049     bool Equals(const StringsVectorIterator& rvalue) const;
00050
00052     bool operator ==(const StringsVectorIterator& rvalue) const;
00053
00055     bool operator !=(const StringsVectorIterator& rvalue) const;
00056
00058     void Advance();
00059
00061     void operator ++();
00062
00063 private:
00064     class StringsVectorIteratorImpl* pimpl_;
00065 };
00066
00067
00069 class StringsSetIteratorImpl;

```

```

00070
00071
00075 class SE_DLL_EXPORT StringsSetIterator {
00076 private:
00078     StringsSetIterator(const StringsSetIteratorImpl& pimpl);
00079
00080 public:
00082     StringsSetIterator(const StringsSetIterator& other);
00083
00085     StringsSetIterator& operator =(const StringsSetIterator& other);
00086
00088     ~StringsSetIterator();
00089
00091     static StringsSetIterator ConstructFromImpl(
00092         const StringsSetIteratorImpl& pimpl);
00093
00095     const char* GetValue() const;
00096
00098     bool Equals(const StringsSetIterator& rvalue) const;
00099
00101     bool operator ==(const StringsSetIterator& rvalue) const;
00102
00104     bool operator !=(const StringsSetIterator& rvalue) const;
00105
00107     void Advance();
00108
00110     void operator ++();
00111
00112 private:
00113     class StringsSetIteratorImpl* pimpl_;
00114 };
00115
00116
00118 class StringsMapIteratorImpl;
00119
00120
00124 class SE_DLL_EXPORT StringsMapIterator {
00125 private:
00127     StringsMapIterator(const StringsMapIteratorImpl& pimpl);
00128
00129 public:
00131     StringsMapIterator(const StringsMapIterator& other);
00132
00134     StringsMapIterator& operator =(const StringsMapIterator& other);
00135
00137     ~StringsMapIterator();
00138
00140     static StringsMapIterator ConstructFromImpl(
00141         const StringsMapIteratorImpl& pimpl);
00142
00144     const char* GetKey() const;
00145
00147     const char* GetValue() const;
00148
00150     bool Equals(const StringsMapIterator& rvalue) const;
00151
00153     bool operator ==(const StringsMapIterator& rvalue) const;
00154
00156     bool operator !=(const StringsMapIterator& rvalue) const;
00157
00159     void Advance();
00160
00162     void operator ++();
00163
00164 private:
00165     class StringsMapIteratorImpl* pimpl_;
00166 };
00167
00168
00169 } } // namespace se::common::
00170
00171 #endif // SECOMMON_SE_STRINGS_ITERATOR_H_INCLUDED

```


Index

- Activate
 - se::id::IdSession, 91
- AddEnabledDocumentTypes
 - se::id::IdSessionSettings, 95
- AddFacelImage
 - se::id::IdFaceSession, 72
- AddIgnoredKey
 - se::common::SerializationParameters, 49
- AddIgnoredObjectType
 - se::common::SerializationParameters, 48
- CanCreate
 - se::common::ProjectiveTransform, 39, 41
- Clone
 - se::id::IdFaceSessionSettings, 75
 - se::id::IdFieldProcessingSessionSettings, 81
 - se::id::IdSessionSettings, 95
- CloneAveragedChannels
 - se::common::Image, 23
- CloneCropped
 - se::common::Image, 18, 19
- CloneCroppedShallow
 - se::common::Image, 19
- CloneDeep
 - se::common::Image, 14
- CloneFilled
 - se::common::Image, 21, 22
- CloneFlippedHorizontal
 - se::common::Image, 23
- CloneFlippedVertical
 - se::common::Image, 22
- CloneInverted
 - se::common::Image, 23
- CloneMasked
 - se::common::Image, 20
- CloneResized
 - se::common::Image, 17
- CloneRotated90
 - se::common::Image, 23
- CloneShallow
 - se::common::Image, 15
- ConstructFromImpl
 - se::common::OcrString, 36
- CopyBase64ToBuffer
 - se::common::Image, 16
- CopyToBuffer
 - se::common::Image, 15
- Create
 - se::common::ProjectiveTransform, 41, 42
 - se::id::IdEngine, 67
- CreateEmpty
 - se::common::Image, 8
- CreateFaceSessionSettings
 - se::id::IdEngine, 64
- CreateFieldProcessingSessionSettings
 - se::id::IdEngine, 65
- CreateFileAnalysisSessionSettings
 - se::id::IdEngine, 64
- CreateFromEmbeddedBundle
 - se::id::IdEngine, 68
- CreateJSONSerializer
 - se::common::Serializer, 50
- CreateSessionSettings
 - se::id::IdEngine, 63
- CreateVideoAuthenticationSessionSettings
 - se::id::IdEngine, 66
- Crop
 - se::common::Image, 17, 18
- EstimateFocusScore
 - se::common::Image, 16
- FeedbackReceived
 - se::id::IdFeedback, 77
- Fill
 - se::common::Image, 21
- FromBase64Buffer
 - se::common::Image, 11
- FromBuffer
 - se::common::Image, 9
- FromBufferExtended
 - se::common::Image, 10
- FromFile
 - se::common::Image, 9
- FromFileBuffer
 - se::common::Image, 9
- FromYUV
 - se::common::Image, 11
- FromYUVBuffer
 - se::common::Image, 11
- GetActivationRequest
 - se::id::IdSession, 91
- GetAllowedNumberOfFailedInstructions
 - se::id::IdFaceSession, 74
- GetBase64String
 - se::common::Image, 16
- GetImagePageName
 - se::common::Image, 8
- GetInitializerInstructionTime
 - se::id::IdFaceSession, 74
- GetInstructionsCount
 - se::id::IdFaceSession, 73
- GetLayer
 - se::common::Image, 12
- GetLayerPtr
 - se::common::Image, 12
- GetLivenessResult
 - se::id::IdFaceSession, 73
- GetNumberOfLayers
 - se::common::Image, 12

- GetNumberOfPages
 - se::common::Image, 8
- GetPassAllInstruction
 - se::id::IdFaceSession, 74
- GetPushedImagesCount
 - se::id::IdFaceSession, 73
- GetRects
 - se::id::IdFaceSession, 73
- GetRequiredBase64BufferLength
 - se::common::Image, 16
- GetRequiredBufferLength
 - se::common::Image, 15
- GetSimilarity
 - se::id::IdFaceSession, 71
- GetSimilarityWith
 - se::id::IdFaceSession, 72
- GetVersion
 - se::id::IdEngine, 68
- HasAccumulatedImage
 - se::id::IdFaceSession, 73
- HasIgnoredKey
 - se::common::SerializationParameters, 48
- HasIgnoredObjectType
 - se::common::SerializationParameters, 48
- HasLayer
 - se::common::Image, 13
- HasLayers
 - se::common::Image, 13
- id_engine.h, 102
- id_face_feedback.h, 103
- id_face_result.h, 104
- id_face_session.h, 108
- id_face_session_settings.h, 109
- id_feedback.h, 110
- id_field_processing_session.h, 112
- id_field_processing_session_settings.h, 113
- id_fields.h, 114
- id_result.h, 119
- id_session.h, 124
- id_session_settings.h, 125
- IdAnimatedField
 - se::id::IdAnimatedField, 56
- IdBaseFieldInfo
 - se::id::IdBaseFieldInfo, 59
- IdCheckField
 - se::id::IdCheckField, 60
- IdImageField
 - se::id::IdImageField, 82
- IdTemplateDetectionResult
 - se::id::IdTemplateDetectionResult, 97
- IdTemplateSegmentationResult
 - se::id::IdTemplateSegmentationResult, 99
- IdTextField
 - se::id::IdTextField, 100
- IsActivated
 - se::id::IdSession, 91
- LayersBegin
 - se::common::Image, 13
- LayersEnd
 - se::common::Image, 13
- Mask
 - se::common::Image, 19, 20
- MessageReceived
 - se::id::IdFaceFeedback, 69
- OcrChar
 - se::common::OcrChar, 30
- OcrCharVariant
 - se::common::OcrCharVariant, 31, 32
- OcrPair
 - se::common::OcrPair, 33, 34
- OcrString
 - se::common::OcrString, 36
- Process
 - se::id::IdSession, 91, 92
- ProcessOneShotLiveness
 - se::id::IdEngine, 65
- RemoveEnabledDocumentTypes
 - se::id::IdSessionSettings, 95
- RemoveIgnoredKey
 - se::common::SerializationParameters, 49
- RemoveIgnoredObjectType
 - se::common::SerializationParameters, 48
- RemoveLayer
 - se::common::Image, 14
- Resize
 - se::common::Image, 17
- ResultReceived
 - se::id::IdFeedback, 78
- Rotate90
 - se::common::Image, 23
- Save
 - se::common::Image, 15
- se::common::BaseException, 2
- se::common::ByteString, 3
- se::common::FileSystemException, 4
- se::common::Image, 4
 - CloneAveragedChannels, 23
 - CloneCropped, 18, 19
 - CloneCroppedShallow, 19
 - CloneDeep, 14
 - CloneFilled, 21, 22
 - CloneFlippedHorizontal, 23
 - CloneFlippedVertical, 22
 - CloneInverted, 23
 - CloneMasked, 20
 - CloneResized, 17
 - CloneRotated90, 23
 - CloneShallow, 15
 - CopyBase64ToBuffer, 16
 - CopyToBuffer, 15

- CreateEmpty, 8
- Crop, 17, 18
- EstimateFocusScore, 16
- Fill, 21
- FromBase64Buffer, 11
- FromBuffer, 9
- FromBufferExtended, 10
- FromFile, 9
- FromFileBuffer, 9
- FromYUV, 11
- FromYUVBuffer, 11
- GetBase64String, 16
- GetImagePageName, 8
- GetLayer, 12
- GetLayerPtr, 12
- GetNumberOfLayers, 12
- GetNumberOfPages, 8
- GetRequiredBase64BufferLength, 16
- GetRequiredBufferLength, 15
- HasLayer, 13
- HasLayers, 13
- LayersBegin, 13
- LayersEnd, 13
- Mask, 19, 20
- RemoveLayer, 14
- Resize, 17
- Rotate90, 23
- Save, 15
- SetLayer, 14
- SetLayerWithOwnership, 14
- se::common::InternalException, 24
- se::common::InvalidArgumentException, 24
- se::common::InvalidKeyException, 25
- se::common::InvalidStateException, 26
- se::common::MemoryException, 26
- se::common::MutableString, 27
- se::common::NotSupportedException, 28
- se::common::OcrChar, 29
 - OcrChar, 30
- se::common::OcrCharVariant, 30
 - OcrCharVariant, 31, 32
- se::common::OcrPair, 32
 - OcrPair, 33, 34
- se::common::OcrString, 34
 - ConstructFromImpl, 36
 - OcrString, 36
- se::common::Point, 37
- se::common::Polygon, 37
- se::common::ProjectiveTransform, 38
 - CanCreate, 39, 41
 - Create, 41, 42
- se::common::Quadrangle, 42
- se::common::QuadranglesMapIterator, 43
- se::common::QuadranglesVectorIterator, 44
- se::common::Rectangle, 45
- se::common::RectanglesVectorIterator, 46
- se::common::SerializationParameters, 47
 - AddIgnoredKey, 49
 - AddIgnoredObjectType, 48
 - HasIgnoredKey, 48
 - HasIgnoredObjectType, 48
 - RemoveIgnoredKey, 49
 - RemoveIgnoredObjectType, 48
- se::common::Serializer, 49
 - CreateJSONSerializer, 50
- se::common::Size, 50
- se::common::StringsMapIterator, 51
- se::common::StringsSetIterator, 52
- se::common::StringsVectorIterator, 53
- se::common::UninitializedObjectException, 54
- se::common::YUVDimensions, 55
- se::id::IdAnimatedField, 55
 - IdAnimatedField, 56
- se::id::IdAnimatedFieldsMapIterator, 57
- se::id::IdBaseFieldInfo, 58
 - IdBaseFieldInfo, 59
- se::id::IdCheckField, 59
 - IdCheckField, 60
- se::id::IdCheckFieldsMapIterator, 60
- se::id::IdDocumentInfo, 61
- se::id::IdEngine, 62
 - Create, 67
 - CreateFaceSessionSettings, 64
 - CreateFieldProcessingSessionSettings, 65
 - CreateFileAnalysisSessionSettings, 64
 - CreateFromEmbeddedBundle, 68
 - CreateSessionSettings, 63
 - CreateVideoAuthenticationSessionSettings, 66
 - GetVersion, 68
 - ProcessOneShotLiveness, 65
 - SpawnFaceSession, 65
 - SpawnFieldProcessingSession, 66
 - SpawnFileAnalysisSession, 64
 - SpawnSession, 63
 - SpawnVideoAuthenticationSession, 66
- se::id::IdFaceFeedback, 68
 - MessageReceived, 69
- se::id::IdFaceLivenessResult, 69
- se::id::IdFaceRectsResult, 70
- se::id::IdFaceSession, 71
 - AddFacelImage, 72
 - GetAllowedNumberOfFailedInstructions, 74
 - GetInitializerInstructionTime, 74
 - GetInstructionsCount, 73
 - GetLivenessResult, 73
 - GetPassAllInstruction, 74
 - GetPushedImagesCount, 73
 - GetRects, 73
 - GetSimilarity, 71
 - GetSimilarityWith, 72
 - HasAccumulatedImage, 73
 - SetFaceToMatchWith, 72
- se::id::IdFaceSessionSettings, 74
 - Clone, 75
- se::id::IdFaceSimilarityResult, 76
- se::id::IdFeedback, 76

- FeedbackReceived, 77
- ResultReceived, 78
- TemplateDetectionResultReceived, 77
- TemplateSegmentationResultReceived, 78
- se::id::IdFeedbackContainer, 78
- se::id::IdFieldProcessingSession, 79
- se::id::IdFieldProcessingSessionSettings, 80
 - Clone, 81
- se::id::IdImageField, 82
 - IdImageField, 82
- se::id::IdImageFieldsMapIterator, 83
- se::id::IdOsIPad, 84
- se::id::IdOsIPadIterator, 84
- se::id::IdOsIResult, 85
- se::id::IdResult, 86
- se::id::IdSession, 90
 - Activate, 91
 - GetActivationRequest, 91
 - IsActivated, 91
 - Process, 91, 92
- se::id::IdSessionSettings, 92
 - AddEnabledDocumentTypes, 95
 - Clone, 95
 - RemoveEnabledDocumentTypes, 95
- se::id::IdTemplateDetectionResult, 96
 - IdTemplateDetectionResult, 97
- se::id::IdTemplateSegmentationResult, 97
 - IdTemplateSegmentationResult, 99
- se::id::IdTextField, 99
 - IdTextField, 100
- se::id::IdTextFieldsMapIterator, 101
- se_common.h, 128
- se_exception.h, 128
- se_export_defs.h, 130
- se_geometry.h, 131
- se_image.h, 135
- se_serialization.h, 138
- se_string.h, 140
- se_strings_iterator.h, 144
- SetFaceToMatchWith
 - se::id::IdFaceSession, 72
- SetLayer
 - se::common::Image, 14
- SetLayerWithOwnership
 - se::common::Image, 14
- SpawnFaceSession
 - se::id::IdEngine, 65
- SpawnFieldProcessingSession
 - se::id::IdEngine, 66
- SpawnFileAnalysisSession
 - se::id::IdEngine, 64
- SpawnSession
 - se::id::IdEngine, 63
- SpawnVideoAuthenticationSession
 - se::id::IdEngine, 66
- TemplateDetectionResultReceived
 - se::id::IdFeedback, 77
- TemplateSegmentationResultReceived