Smart Document Engine Library Reference

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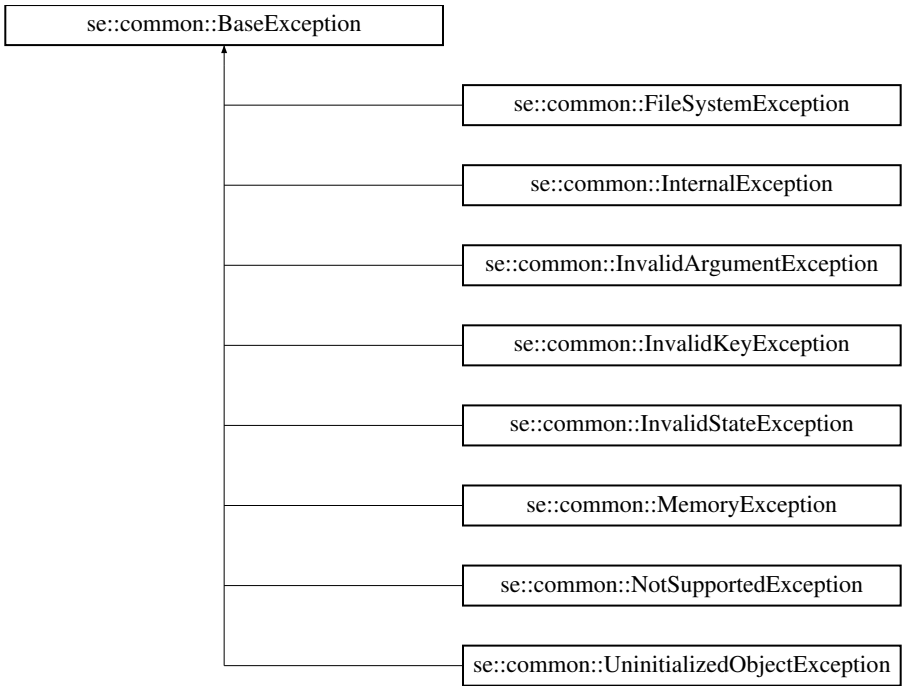
1 Class Documentation

1.1 se::common::BaseException Class Reference

BaseException class - base class for all SE exeptions. Cannot be created directly.

`#include <se_exception.h>`

Inheritance diagram for se::common::BaseException:



Public Member Functions

- virtual ~**BaseException** ()

  Non-trivial dtor.
- **BaseException** (const BaseException &copy)

  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.

1.1.2 Member Function Documentation

ExceptionName()

```
virtual const char * se::common::BaseException::ExceptionName () const  [virtual]
```

Returns exception class name.

Reimplemented in se::common::FileSystemException, se::common::InternalException, se::common::InvalidArgumentException, se::common::InvalidKeyException, se::common::InvalidStateException, se::common::MemoryException, se::common::NotSupportedE and se::common::UninitializedObjectException.

1.1.3 Member Data Documentation

msg_

```
char* se::common::BaseException::msg_  [private]
```

stored exception message

Definition at line 41 of file se_exception.h.

1.2 se::common::ByteString Class Reference

Class representing byte string.

```
#include <se_string.h>
```

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 formated 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 formated 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 322 of file se_string.h.

1.2.2 Member Data Documentation

len_

```
size_t se::common::ByteString::len_  [private]
```

length of the internal buffer in bytes

Definition at line 364 of file se_string.h.

buf_

```
uint8_t* se::common::ByteString::buf_  [private]
```

internal buffer

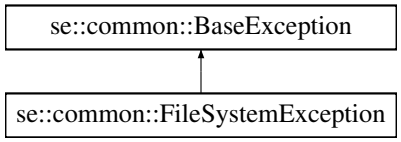
Definition at line 365 of file se_string.h.

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.

```
#include <se_exception.h>
```

Inheritance diagram for se::common::FileSystemException:



Public Member Functions

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

Public Member Functions inherited from se::common::BaseException

- virtual ~**BaseException** ()
  Non-trivial dtor.
- **BaseException** (const BaseException &copy)
  Copy ctor.
- virtual const char * **what** () const
  Returns exception message.

Additional Inherited Members

Protected Member Functions inherited from se::common::BaseException

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

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.

1.3.2 Member Function Documentation

ExceptionName()

```
virtual const char * se::common::FileSystemException::ExceptionName () const  [override], [virtual]
```

Returns exception class name.

Reimplemented from se::common::BaseException.

1.4 se::common::Image Class Reference

Class representing bitmap image.

```
#include <se_image.h>
```

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 transfering 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 colos.
- 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

GetNumberOfPages()

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

Returns the number of pages in an image.

Parameters

image_filename	path to an imag file

Returns

the number of pages in an image

GetImagePageName()

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

Returns the name of the specified page.

Parameters

image_filename	The filename of the image to process.
page_number	0-based page number.

Returns

Separate page filename.

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.

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

image_filename	path to an image file (png, jpg, tif)
page_number	page number (0 by default)
max_size	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.

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

data	pointer to a loaded file buffer
data_length	size of the loaded file buffer
page_number	page number (0 by default)
max_size	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.

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

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

Returns

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

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

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

Returns

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

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

yuv_data	pointer to YUV NV21 buffer
yuv_data_length	size of the YUV NV21 buffer
width	width of the image in pixels
height	height of the image in pixels

Returns

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

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

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

Returns

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

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

base64_buffer	pointer to a base64 file buffer
page_number	page number (0 by default)
max_size	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.

GetNumberOfLayers()

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

Gets the number of additional layers.

Returns

The number of layers

GetLayer()

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

Gets the additional layer by the specified name.

Parameters

name	the name of the required layer

Returns

The layer

GetLayerPtr()

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

Gets the additional layer by the specified name.

Parameters

name	the name of the required layer

Returns

The pointer to the layer

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

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

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

name	the name of the required layer

Returns

whether the Image contains the layer with the specified name

HasLayers()

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

Checks whether the Image contains the layers.

Returns

whether the Image contains the layers

RemoveLayer()

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

Removes the layer with the specified name.

Parameters

name	the name of the removable layer

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

name	the name of the new layer
image	the value of the new layer

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 transfering the given image to the internal layers collection. The caller has to release the ownership of the set image.

Parameters

name	the name of the new layer
image	the pointer to the value of the new layer

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.

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.

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

CopyToBuffer()

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

Copies the image pixels.

Parameters

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

Returns

The number of written bytes

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

image_filename	filename to save the image

GetRequiredBase64BufferLength()

```
virtual int se::common::Image::GetRequiredBase64BufferLength () 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.

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

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

Returns

The number of written bytes.

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

EstimateFocusScore()

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

Estimates focus score of an image.

Parameters

quantile	the derivatives quantile used to estimate focus score

Returns

Focus score of an image

Resize()

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

Scale the image to a new size.

Parameters

new_size	new size of the image

CloneResized()

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

Clones the image scaled to a new size.

Parameters

new_size	new size of the image

Returns

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

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

quad	quadrangle in the image for cropping.

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

quad	quadrangle in the image for cropping

Returns

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

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

quad	quadrangle in the image for cropping
size	target cropped image size

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

quad	quadrangle in the image for cropping
size	target cropped image size

Returns

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

Crop() [3/3]

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

Crops an image to a rectangular image region.

Parameters

rect	rectangular region to crop

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

rect	rectangular region to crop

Returns

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

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

rect	rectangular region to crop

Returns

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

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

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

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

rect	rectangle region to mask
pixel_expand	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.

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

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

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

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

Returns

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

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

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

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

rect	rectangle region to fill
ch1	1-st channel value
ch2	2-nd channel value
ch3	3-rd channel value
ch4	4-th channel value
pixel_expand	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.

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

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

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

quad	quadrangle region to fill
ch1	1-st channel value
ch2	2-nd channel value
ch3	3-rd channel value
ch4	4-th channel value
pixel_expand	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.

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.

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.

Rotate90()

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

Rotates the image clockwise by a multiple of 90 degrees.

Parameters

times	the number of times to rotate

CloneRotated90()

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

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

Parameters

times	the number of times to rotate

Returns

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

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.

CloneInverted()

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

Clones the image with inverted colos.

Returns

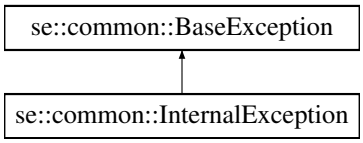
Pointer to a created image. New object is allocated, the caller is responsible for deleting it

1.5 se::common::InternalException Class Reference

InternalException: thrown if an unknown error occurs or if the error occurs within internal system components.

```
#include <se_exception.h>
```

Inheritance diagram for se::common::InternalException:



Public Member Functions

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

Public Member Functions inherited from se::common::BaseException

- virtual ~**BaseException** ()

  Non-trivial dtor.
- **BaseException** (const BaseException &copy)

  Copy ctor.
- virtual const char * **what** () const

  Returns exception message.

Additional Inherited Members

Protected Member Functions inherited from se::common::BaseException

- **BaseException** (const char *msg)

  Protected ctor.

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.

1.5.2 Member Function Documentation

ExceptionName()

```
virtual const char * se::common::InternalException::ExceptionName () const  [override], [virtual]
```

Returns exception class name.

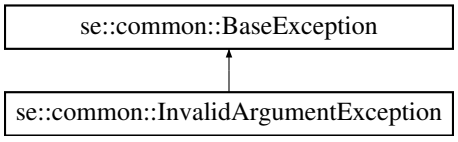
Reimplemented from se::common::BaseException.

1.6 se::common::InvalidArgumentException Class Reference

InvalidArgumentException: thrown if a method is called with invalid input parameters.

```
#include <se_exception.h>
```

Inheritance diagram for se::common::InvalidArgumentException:



Public Member Functions

- **InvalidArgumentException** (const char *msg)

  Ctor with an exception message.
- **InvalidArgumentException** (const InvalidArgumentException &copy)

  Copy ctor.
- virtual ~**InvalidArgumentException** () override=default

  Default dtor.
- virtual const char * ExceptionName () const override

  Returns exception class name.

Public Member Functions inherited from se::common::BaseException

- virtual ~**BaseException** ()

  Non-trivial dtor.
- **BaseException** (const BaseException &copy)

  Copy ctor.
- virtual const char * **what** () const

  Returns exception message.

Additional Inherited Members

Protected Member Functions inherited from se::common::BaseException

- **BaseException** (const char *msg)

  Protected ctor.

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.

1.6.2 Member Function Documentation

ExceptionName()

```
virtual const char * se::common::InvalidArgumentException::ExceptionName () const  [override],
[virtual]
```

Returns exception class name.

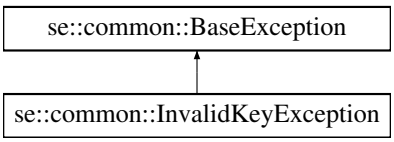
Reimplemented from se::common::BaseException.

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.

`#include <se_exception.h>`

Inheritance diagram for se::common::InvalidKeyException:



Public Member Functions

- **InvalidKeyException** (const char ∗msg)

  Ctor with an exception message.
- **InvalidKeyException** (const InvalidKeyException &copy)

  Copy ctor.
- virtual ∼**InvalidKeyException** () override=default

  Default dtor.
- virtual const char ∗ ExceptionName () const override

  Returns exception class name.

Public Member Functions inherited from se::common::BaseException

- virtual ∼**BaseException** ()

  Non-trivial dtor.
- **BaseException** (const BaseException &copy)

  Copy ctor.
- virtual const char ∗ **what** () const

  Returns exception message.

Additional Inherited Members

Protected Member Functions inherited from se::common::BaseException

- **BaseException** (const char ∗msg)

  Protected ctor.

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.

1.7.2 Member Function Documentation

ExceptionName()

```
virtual const char * se::common::InvalidKeyException::ExceptionName () const  [override], [virtual]
```

Returns exception class name.

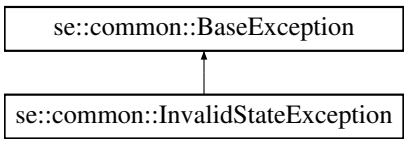
Reimplemented from se::common::BaseException.

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.

```
#include <se_exception.h>
```

Inheritance diagram for se::common::InvalidStateException:



Public Member Functions

- **InvalidStateException** (const char *msg)
  Ctor with an exception message.
- **InvalidStateException** (const InvalidStateException &copy)
  Copy ctor.
- virtual ~**InvalidStateException** () override=default
  Default dtor.
- virtual const char * ExceptionName () const override
  Returns exception class name.

Public Member Functions inherited from se::common::BaseException

- virtual ~**BaseException** ()
  Non-trivial dtor.
- **BaseException** (const BaseException &copy)
  Copy ctor.
- virtual const char * **what** () const
  Returns exception message.

Additional Inherited Members

Protected Member Functions inherited from se::common::BaseException

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

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.

1.8.2 Member Function Documentation

ExceptionName()

```
virtual const char * se::common::InvalidStateException::ExceptionName () const  [override],
[virtual]
```

Returns exception class name.

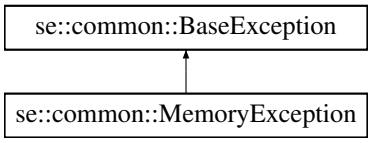
Reimplemented from se::common::BaseException.

1.9 se::common::MemoryException Class Reference

MemoryException: thrown if an allocation is attempted with insufficient RAM.

```
#include <se_exception.h>
```

Inheritance diagram for se::common::MemoryException:



Public Member Functions

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

Public Member Functions inherited from se::common::BaseException

- virtual ~**BaseException** ()
  Non-trivial dtor.
- **BaseException** (const BaseException &copy)
  Copy ctor.
- virtual const char * **what** () const
  Returns exception message.

Additional Inherited Members

Protected Member Functions inherited from se::common::BaseException

- **BaseException** (const char ∗msg)

  Protected ctor.

1.9.1 Detailed Description

MemoryException: thrown if an allocation is attempted with insufficient RAM.

Definition at line 152 of file se_exception.h.

1.9.2 Member Function Documentation

ExceptionName()

```
virtual const char * se::common::MemoryException::ExceptionName () const  [override], [virtual]
```

Returns exception class name.

Reimplemented from se::common::BaseException.

1.10 se::common::MutableString Class Reference

Class representing a mutable, memory-owner string.

```
#include <se_string.h>
```

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.

1.10.2 Member Data Documentation

len_

```
int se::common::MutableString::len_  [private]
```

length of the internal string in bytes

Definition at line 62 of file se_string.h.

buf_

```
char* se::common::MutableString::buf_  [private]
```

internal C-string

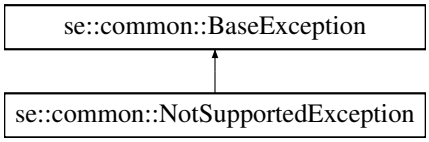
Definition at line 63 of file se_string.h.

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.

```
#include <se_exception.h>
```

Inheritance diagram for se::common::NotSupportedException:



Public Member Functions

- **NotSupportedException** (const char ∗msg)

  Ctor with an exception message.
- **NotSupportedException** (const NotSupportedException &copy)

  Copy ctor.
- virtual ∼**NotSupportedException** () override=default

  Default dtor.
- virtual const char ∗ ExceptionName () const override

  Returns exception class name.

Public Member Functions inherited from se::common::BaseException

- virtual ∼**BaseException** ()

  Non-trivial dtor.
- **BaseException** (const BaseException &copy)

  Copy ctor.
- virtual const char ∗ **what** () const

  Returns exception message.

Additional Inherited Members

Protected Member Functions inherited from se::common::BaseException

- **BaseException** (const char ∗msg)

  Protected ctor.

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.

1.11.2 Member Function Documentation

ExceptionName()

```
virtual const char * se::common::NotSupportedException::ExceptionName () const  [override],
[virtual]
```

Returns exception class name.

Reimplemented from se::common::BaseException.

1.12 se::common::OcrChar Class Reference

Class representing an OCR information for a given recognized character.

`#include <se_string.h>`

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 129 of file se_string.h.

1.12.2 Constructor & Destructor Documentation

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

variants	pointer to an array of variants
variants_count	the number of variants in the array
is_highlighted	highlight flag for the OcrChar
quad	quadrangle of the OcrChar

1.12.3 Member Data Documentation

vars_cnt_

```
int se::common::OcrChar::vars_cnt_  [private]
```

number of variants

Definition at line 207 of file se_string.h.

vars_

```
OcrCharVariant* se::common::OcrChar::vars_  [private]
```

variants array

Definition at line 208 of file se_string.h.

is_highlighted_

```
bool se::common::OcrChar::is_highlighted_  [private]
```

highlight flag

Definition at line 209 of file se_string.h.

quad_

```
Quadrangle se::common::OcrChar::quad_  [private]
```

OcrChar quadrangle.

Definition at line 210 of file se_string.h.

1.13 se::common::OcrCharVariant Class Reference

Class representing a possible character recognition result.

```
#include <se_string.h>
```

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

OcrCharVariant() [1/2]

```
se::common::OcrCharVariant::OcrCharVariant (
            const MutableString & utf8_char,
            float confidence)
```

Ctor from utf8-char represented as a mutable string.

Parameters

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

OcrCharVariant() [2/2]

```
se::common::OcrCharVariant::OcrCharVariant (
            const char * utf8_char,
            float confidence)
```

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

Parameters

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

1.13.3 Member Data Documentation

char_

```
MutableString se::common::OcrCharVariant::char_  [private]
```

character recognition result representation

Definition at line 120 of file se_string.h.

conf_

```
float se::common::OcrCharVariant::conf_  [private]
```

confidence value

Definition at line 121 of file se_string.h.

internal_score_

```
float se::common::OcrCharVariant::internal_score_  [private]
```

internal score

Definition at line 122 of file se_string.h.

1.14 se::common::OcrString Class Reference

Class representing text string recognition result.

```
#include <se_string.h>
```

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.
- 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.

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_

1.14.1 Detailed Description

Class representing text string recognition result.

Definition at line 220 of file se_string.h.

1.14.2 Constructor & Destructor Documentation

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

utf8_str	input utf8 C-string

OcrString() [2/2]

```
se::common::OcrString::OcrString (
            const OcrChar * chars,
            int chars_count)
```

Ctor from an array of characters.

Parameters

chars	array of OcrChars
chars_count	the number of characters

1.14.3 Member Function Documentation

ConstructFromImpl()

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

Ctor from a ptr to OcrStringImpl class.

Parameters

ocr_string_impl	ptr to OcrStringImpl class

1.14.4 Member Data Documentation

ocr_string_impl_

```
OcrStringImpl* se::common::OcrString::ocr_string_impl_  [private]
```

Definition at line 316 of file se_string.h.

1.15 se::common::Point Class Reference

Class representing a point in an image.

```
#include <se_geometry.h>
```

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)

1.15.1 Detailed Description

Class representing a point in an image.

Definition at line 47 of file se_geometry.h.

1.15.2 Member Data Documentation

x

```
double se::common::Point::x
```

X-coordinate of the point (in pixels)

Definition at line 62 of file se_geometry.h.

y

```
double se::common::Point::y
```

Y-coordinate of the point (in pixels)

Definition at line 63 of file se_geometry.h.

1.16 se::common::Polygon Class Reference

Class representing a polygon in an image.

```
#include <se_geometry.h>
```

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.

1.16.1 Detailed Description

Class representing a polygon in an image.

Definition at line 225 of file se_geometry.h.

1.16.2 Member Data Documentation

pts_cnt_

```
int se::common::Polygon::pts_cnt_  [private]
```

Number of points.

Definition at line 278 of file se_geometry.h.

pts_

```
Point* se::common::Polygon::pts_  [private]
```

Points array.

Definition at line 279 of file se_geometry.h.

1.17 se::common::ProjectiveTransform Class Reference

Class representing projective transformation of a plane.

```
#include <se_geometry.h>
```

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 **IsInvertable** () const =0

  Returns true iff the transformation is invertable.
- 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.

1.17.1 Detailed Description

Class representing projective transformation of a plane.

Definition at line 286 of file se_geometry.h.

1.17.2 Member Typedef Documentation

Raw2dArrayType

```
using se::common::ProjectiveTransform::Raw2dArrayType = double[3][3]
```

type declaration for internal matrix

Definition at line 288 of file se_geometry.h.

1.17.3 Member Function Documentation

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

src_quad	transformation source
dst_quad	transformation destination

Returns

true iff such transform can be defined and constructed

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

src_quad	transformation source
dst_size	linear sizes of the transformation destionation

Returns

true iff such transform can be defined and constructed

Create() [1/4]

```
static ProjectiveTransform * se::common::ProjectiveTransform::Create ()  [static]
```

Creates a unit transformation.

Returns

Unit transformation object

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

src_quad	transformation source
dst_quad	transformation destination

Returns

Created transform

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

src_quad	transformation source
dst_size	linear sizes of the transformation destination

Returns

Created transform

Create() [4/4]

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

Creates a transformation given raw matrix.

Parameters

coeffs	transformation matrix

Returns

Created transform

1.18 se::common::Quadrangle Class Reference

Class representing a quadrangle in an image.

`#include <se_geometry.h>`

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.

1.18.1 Detailed Description

Class representing a quadrangle in an image.

Definition at line 93 of file se_geometry.h.

1.18.2 Member Data Documentation

pts_

```
Point se::common::Quadrangle::pts_[4]  [private]
```

Constituent points.

Definition at line 126 of file se_geometry.h.

1.19 se::common::QuadranglesMapIterator Class Reference

QuadranglesMapIterator: iterator object for maps of named quadrangles.

```
#include <se_geometry.h>
```

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.

1.19.1 Detailed Description

QuadranglesMapIterator: iterator object for maps of named quadrangles.

Definition at line 135 of file se_geometry.h.

1.19.2 Member Data Documentation

pimpl_

```
class QuadranglesMapIteratorImpl* se::common::QuadranglesMapIterator::pimpl_  [private]
```

Internal implementation.

Definition at line 176 of file se_geometry.h.

1.20 se::common::Rectangle Class Reference

Class representing a rectangle in an image.

```
#include <se_geometry.h>
```

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)

1.20.1 Detailed Description

Class representing a rectangle in an image.

Definition at line 22 of file se_geometry.h.

1.20.2 Member Data Documentation

x

```
int se::common::Rectangle::x
```

X-coordinate of the top-left corner (in pixels)

Definition at line 37 of file se_geometry.h.

y

```
int se::common::Rectangle::y
```

Y-coordinate of the top-left corner (in pixels)

Definition at line 38 of file se_geometry.h.

width

```
int se::common::Rectangle::width
```

Width of the rectangle (in pixels)

Definition at line 39 of file se_geometry.h.

height

```
int se::common::Rectangle::height
```

Height of the rectangle (in pixels)

Definition at line 40 of file se_geometry.h.

1.21 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 quadrangle.
- 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 iff the rvalue iterator points to the same object.
- bool **operator!=** (const RectanglesVectorIterator &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 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.

1.21.1 Detailed Description

Definition at line 181 of file se_geometry.h.

1.21.2 Member Data Documentation

pimpl_

```
class RectanglesVectorIteratorImpl* se::common::RectanglesVectorIterator::pimpl_  [private]
```

Internal implementation.

Definition at line 219 of file se_geometry.h.

1.22 se::common::SerializationParameters Class Reference

Class representing serialization parameters.

`#include <se_serialization.h>`

Public Member Functions

- **SerializationParameters** ()
  Default ctor.
- ~**SerializationParameters** ()
  Default dtor.
- **SerializationParameters** (const SerializationParameters &copy)
  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

1.22.1 Detailed Description

Class representing serialization parameters.

Definition at line 25 of file se_serialization.h.

1.22.2 Member Function Documentation

HasIgnoredObjectType()

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

Checks whether the serialization parameters have an ignored object type.

Parameters

object_type	the name of the object type to check

Returns

true iff the object type 'object_type' is ignored

AddIgnoredObjectType()

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

Adds an object type to the set of ignored.

Parameters

object_type	the name of the object type to add

RemoveIgnoredObjectType()

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

Removes an object type from the set of ignored.

Parameters

object_type	the name of the object type to remove

HasIgnoredKey()

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

Checks whether the serialization parameters have an ignored key.

Parameters

key	the name of the key to check

Returns

true iff the key 'key' is ignored

AddIgnoredKey()

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

Adds a key to the set of ignored keys.

Parameters

key	the name of the key to add

RemoveIgnoredKey()

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

Removes a key from the set of ignored keys.

Parameters

key	the name of the key to remove

1.22.3 Member Data Documentation

pimpl_

```
SerializationParametersImpl* se::common::SerializationParameters::pimpl_  [private]
```

pointer to internal implementation

Definition at line 94 of file se_serialization.h.

1.23 se::common::Serializer Class Reference

Class representing the serializer object.

```
#include <se_serialization.h>
```

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 &params)

  Factory method for creating a JSON serializer object.

1.23.1 Detailed Description

Class representing the serializer object.

Definition at line 104 of file se_serialization.h.

1.23.2 Member Function Documentation

CreateJSONSerializer()

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

Factory method for creating a JSON serializer object.

Parameters

params	serialization parameters

Returns

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

1.24 se::common::Size Class Reference

Class representing a size of the (rectangular) object.

```
#include <se_geometry.h>
```

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.

1.24.1 Detailed Description

Class representing a size of the (rectangular) object.

Definition at line 70 of file se_geometry.h.

1.24.2 Member Data Documentation

width

```
int se::common::Size::width
```

Width.

Definition at line 85 of file se_geometry.h.

height

```
int se::common::Size::height
```

Height.

Definition at line 86 of file se_geometry.h.

1.25 se::common::StringsMapIterator Class Reference

Iterator to a map from strings to strings.

```
#include <se_strings_iterator.h>
```

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

1.25.1 Detailed Description

Iterator to a map from strings to strings.

Definition at line 124 of file se_strings_iterator.h.

1.25.2 Member Data Documentation

pimpl_

```
class StringsMapIteratorImpl* se::common::StringsMapIterator::pimpl_  [private]
```

internal implementation

Definition at line 165 of file se_strings_iterator.h.

1.26 se::common::StringsSetIterator Class Reference

Iterator to a set-like collection of strings.

```
#include <se_strings_iterator.h>
```

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

1.26.1 Detailed Description

Iterator to a set-like collection of strings.

Definition at line 75 of file se_strings_iterator.h.

1.26.2 Member Data Documentation

pimpl_

```
class StringsSetIteratorImpl* se::common::StringsSetIterator::pimpl_  [private]
```

internal implementation

Definition at line 113 of file se_strings_iterator.h.

1.27 se::common::StringsVectorIterator Class Reference

Iterator to a vector-like collection of strings.

```
#include <se_strings_iterator.h>
```

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

1.27.1 Detailed Description

Iterator to a vector-like collection of strings.

Definition at line 26 of file se_strings_iterator.h.

1.27.2 Member Data Documentation

pimpl_

```
class StringsVectorIteratorImpl* se::common::StringsVectorIterator::pimpl_  [private]
```

internal implementation

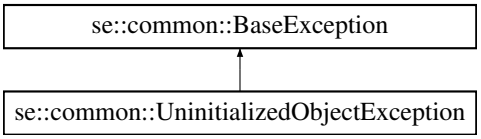
Definition at line 64 of file se_strings_iterator.h.

1.28 se::common::UninitializedObjectException Class Reference

UninitializedObjectException: thrown if an attempt is made to access a non-existent or non-initialized object.

```
#include <se_exception.h>
```

Inheritance diagram for se::common::UninitializedObjectException:



Public Member Functions

- **UninitializedObjectException** (const char ∗msg)

  Ctor with an exception message.
- **UninitializedObjectException** (const UninitializedObjectException &copy)

  Copy ctor.
- virtual ∼**UninitializedObjectException** () override=default

  Default dtor.
- virtual const char ∗ ExceptionName () const override

  Returns exception class name.

Public Member Functions inherited from se::common::BaseException

- virtual ∼**BaseException** ()

  Non-trivial dtor.
- **BaseException** (const BaseException &copy)

  Copy ctor.
- virtual const char ∗ **what** () const

  Returns exception message.

Additional Inherited Members

Protected Member Functions inherited from se::common::BaseException

- **BaseException** (const char ∗msg)

  Protected ctor.

1.28.1 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.

1.28.2 Member Function Documentation

ExceptionName()

```
virtual const char * se::common::UninitializedObjectException::ExceptionName () const  [override],
[virtual]
```

Returns exception class name.

Reimplemented from se::common::BaseException.

1.29 se::common::YUVDimensions Class Reference

The YUVDimensions struct - extended YUV parameters.

```
#include <se_image.h>
```

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.

1.29.1 Detailed Description

The YUVDimensions struct - extended YUV parameters.

Definition at line 49 of file se_image.h.

1.29.2 Member Data Documentation

y_plane_pixel_stride

```
int se::common::YUVDimensions::y_plane_pixel_stride
```

Y plane pixel stride.

Definition at line 65 of file se_image.h.

y_plane_row_stride

```
int se::common::YUVDimensions::y_plane_row_stride
```

Y plane row stride.

Definition at line 66 of file se_image.h.

u_plane_pixel_stride

```
int se::common::YUVDimensions::u_plane_pixel_stride
```

U plane pixel stride.

Definition at line 67 of file se_image.h.

u_plane_row_stride

```
int se::common::YUVDimensions::u_plane_row_stride
```

U plane row stride.

Definition at line 68 of file se_image.h.

v_plane_pixel_stride

```
int se::common::YUVDimensions::v_plane_pixel_stride
```

V plane pixel stride.

Definition at line 69 of file se_image.h.

v_plane_row_stride

```
int se::common::YUVDimensions::v_plane_row_stride
```

V plane row stride.

Definition at line 70 of file se_image.h.

width

```
int se::common::YUVDimensions::width
```

image width in pixels

Definition at line 71 of file se_image.h.

height

```
int se::common::YUVDimensions::height
```

image height in pixels

Definition at line 72 of file se_image.h.

type

```
YUVType se::common::YUVDimensions::type
```

YUV format type.

Definition at line 73 of file se_image.h.

1.30 se::doc::DocBarcodeField Class Reference

The class representing a barcode field of a document.

```
#include <doc_fields.h>
```

Public Member Functions

- virtual ~**DocBarcodeField** ()=default
  Default dtor.
- virtual const DocBaseFieldInfo & **GetBaseFieldInfo** () const =0
  Returns the basic field information (const ref)
- virtual DocBaseFieldInfo & **GetMutableBaseFieldInfo** ()=0
  Returns the basic field information (mutable ref)
- virtual const DocBaseFieldInfo * **GetBaseFieldInfoPtr** () const =0
  Returns the basic field information (const ptr)
- virtual DocBaseFieldInfo * **GetMutableBaseFieldInfoPtr** ()=0
  Returns the basic field information (mutable ptr)
- virtual const se::common::MutableString & **GetDecodedString** () const =0
  Returns the barcode decoded message (const ref)
- virtual se::common::MutableString & **GetMutableDecodedString** ()=0
  Returns the barcode decoded message (mutable ref)
- virtual const se::common::MutableString * **GetDecodedStringPtr** () const =0
  Returns the barcode decoded message (const ptr)
- virtual se::common::MutableString * **GetMutableDecodedStringPtr** ()=0
  Returns the barcode decoded message (mutable ptr)
- virtual void **SetDecodedString** (const se::common::MutableString &decstring)=0
  Sets the barcode decoded message.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0
  Serializes the field instance with a given serializer object.

1.30.1 Detailed Description

The class representing a barcode field of a document.

Definition at line 329 of file doc_fields.h.

1.31 se::doc::DocBarcodeFieldsIterator Class Reference

Const-ref iterator for a collection of barcode fields.

`#include <doc_fields_iterators.h>`

Public Member Functions

- **DocBarcodeFieldsIterator** (const DocBarcodeFieldsIterator &other)
  Copy ctor.
- DocBarcodeFieldsIterator & **operator=** (const DocBarcodeFieldsIterator &other)
  Assignment operator.
- ~**DocBarcodeFieldsIterator** ()
  Non-trivial dtor.
- const char * **GetKey** () const
  Returns the field name (the collection key)
- const DocBarcodeField & **GetField** () const
  Returns the field value (const ref)
- const DocBarcodeField * **GetFieldPtr** () const
  Returns the field value (const ptr)
- void **Advance** ()
  Switches the iterator to point on the next field in its collection.
- void **operator++** ()
  Switches the iterator to point on the next field in its collection.
- bool **Equals** (const DocBarcodeFieldsIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same field.
- bool **operator==** (const DocBarcodeFieldsIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same field.
- bool **operator!=** (const DocBarcodeFieldsIterator &rvalue) const
  Returns true iff this instance and rvalue point to the different fields.

Static Public Member Functions

- static DocBarcodeFieldsIterator **ConstructFromImpl** (const DocBarcodeFieldsIteratorImpl &pimpl)
  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocBarcodeFieldsIterator** (const DocBarcodeFieldsIteratorImpl &pimpl)
  Private ctor from internal implementation.

Private Attributes

- class DocBarcodeFieldsIteratorImpl * pimpl_

  Pointer to internal implementation.

1.31.1 Detailed Description

Const-ref iterator for a collection of barcode fields.

Definition at line 313 of file doc_fields_iterators.h.

1.31.2 Member Data Documentation

pimpl_

```
class DocBarcodeFieldsIteratorImpl* se::doc::DocBarcodeFieldsIterator::pimpl_  [private]
```

Pointer to internal implementation.

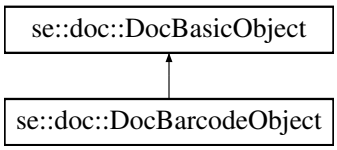
Definition at line 350 of file doc_fields_iterators.h.

1.32 se::doc::DocBarcodeObject Class Reference

The graphical object representing a barcode.

```
#include <doc_objects.h>
```

Inheritance diagram for se::doc::DocBarcodeObject:



Public Member Functions

- virtual ~**DocBarcodeObject** () override=default

  Default dtor.
- virtual const se::common::MutableString & **GetDecodedString** () const =0

  Returns the barcode decoded message (const ref)
- virtual se::common::MutableString & **GetMutableDecodedString** ()=0

  Returns the barcode decoded message (mutable ref)
- virtual const se::common::MutableString * **GetDecodedStringPtr** () const =0

  Returns the barcode decoded message (const ptr)
- virtual se::common::MutableString * **GetMutableDecodedStringPtr** ()=0

  Returns the barcode decoded message (mutable ptr)
- virtual void **SetDecodedString** (const se::common::MutableString &decstring)=0

  Sets the barcode decoded message.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default

  Default dtor.
- virtual const char * **ObjectType** () const =0

  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0

  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0

  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0

  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0

  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()

  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.32.1 Detailed Description

The graphical object representing a barcode.

Definition at line 233 of file doc_objects.h.

1.33 se::doc::DocBaseFieldInfo Class Reference

The class representing basic document field information.

`#include <doc_fields.h>`

Public Member Functions

- virtual ~**DocBaseFieldInfo** ()=default

  Default dtor.
- virtual const char * **GetName** () const =0

  Returns the name of the field.
- virtual void **SetName** (const char *name)=0

  Sets the name of the field.
- virtual double **GetConfidence** () const =0

  Returns the confidence of the field (double in range [0.0, 1.0])
- virtual void **SetConfidence** (double conf)=0

  Sets the confidence of the field (double in range [0.0, 1.0])
- virtual bool **GetAcceptFlag** () const =0

  Returns the field acceptance flag.
- virtual void **SetAcceptFlag** (bool is_accepted)=0

  Sets the field acceptance flag.
- virtual int **GetAttributesCount** () const =0

  Returns the number of field attributes.
- virtual bool **HasAttribute** (const char *attr_name) const =0

  Returns true iff there exists a field attribute with a given name.
- virtual const char * **GetAttribute** (const char *attr_name) const =0

  Returns the value of an attribute with a given name.
- virtual void **SetAttribute** (const char *attr_name, const char *attr_value)=0

  Sets the field attribute as a key-value pair.
- virtual void **RemoveAttribute** (const char *attr_name)=0

  Removes the field attribute with a given name.
- virtual se::common::StringsMapIterator **AttributesBegin** () const =0

  Returns a 'begin' map-like iterator to the collection of field attributes.
- virtual se::common::StringsMapIterator **AttributesEnd** () const =0

  Returns an 'end' map-like iterator to the collection of field attributes.
- virtual void **ConnectBasicObject** (int coll_id, int obj_id)=0

  Connects a basic object obj_id from collection coll_id with this field.
- virtual DocBasicObjectsCrossSliceIterator **ConnectedBasicObjectsBegin** (const DocGraphicalStructure &graphical) const =0

  Returns a constant 'begin' iterator to all connected graphical objects.
- virtual DocBasicObjectsCrossSliceIterator **ConnectedBasicObjectsEnd** (const DocGraphicalStructure &graphical) const =0

  Returns a constant 'end' iterator to all connected graphical objects.
- virtual DocBasicObjectsMutableCrossSliceIterator **MutableConnectedBasicObjectsBegin** (DocGraphicalStructure &graphical)=0

  Returns a mutable 'begin' iterator to all connected graphical objects.
- virtual DocBasicObjectsMutableCrossSliceIterator **MutableConnectedBasicObjectsEnd** (DocGraphicalStructure &graphical)=0

  Returns a mutable 'end' iterator to all connected graphical objects.
- virtual void **ConnectTextObject** (int page_id, int obj_id)=0

  Connects a text object obj_id from physical page page_id with this field.
- virtual void **ConnectTableObject** (int page_id, int obj_id)=0

  Connects a table object obj_id from physical page page_id with this field.
- virtual void **ConnectImageObject** (int page_id, int obj_id)=0
- virtual DocBasicObjectsCrossPageIterator **ConnectedTextObjectsBegin** (const DocPhysicalDocument &phys_doc) const =0

  Returns a constant 'begin' iterator to all connected physical objects.

- virtual DocBasicObjectsCrossPageIterator **ConnectedTextObjectsEnd** (const DocPhysicalDocument &phys_doc) const =0

  Returns a constant 'end' iterator to all connected physical objects.
- virtual DocBasicObjectsCrossPageIterator **ConnectedTableObjectsBegin** (const DocPhysicalDocument &phys_doc) const =0

  Returns a constant 'begin' iterator to all connected table physical objects.
- virtual DocBasicObjectsCrossPageIterator **ConnectedTableObjectsEnd** (const DocPhysicalDocument &phys_doc) const =0

  Returns a constant 'end' iterator to all connected table physical objects.
- virtual DocBasicObjectsMutableCrossPageIterator **MutableConnectedTextObjectsBegin** (DocPhysical↩ Document &phys_doc)=0

  Returns a mutable 'begin' iterator to all connected physical objects.
- virtual DocBasicObjectsMutableCrossPageIterator **MutableConnectedTextObjectsEnd** (DocPhysical↩ Document &phys_doc)=0

  Returns a mutable 'end' iterator to all connected physical objects.
- virtual DocBasicObjectsMutableCrossPageIterator **MutableConnectedTableObjectsBegin** (DocPhysical↩ Document &phys_doc)=0

  Returns a mutable 'begin' iterator to all connected table physical objects.
- virtual DocBasicObjectsMutableCrossPageIterator **MutableConnectedTableObjectsEnd** (DocPhysical↩ Document &phys_doc)=0

  Returns a mutable 'end' iterator to all connected table physical objects.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the field info instance with a given serializer object.

1.33.1 Detailed Description

The class representing basic document field information.

Definition at line 28 of file doc_fields.h.

1.34 se::doc::DocBaseObjectInfo Class Reference

The class representing basic information about a graphical object.

`#include <doc_basic_object.h>`

Public Member Functions

- virtual ~**DocBaseObjectInfo** ()=default

  Default dtor.
- virtual int **GetViewID** () const =0

  Returns an ID of a DocView which is associated with this object.
- virtual void **SetViewID** (int view_id)=0

  Sets an ID of a DocView which is associated with this object.
- virtual double **GetConfidence** () const =0

  Returns the object confidence value (double in range [0.0, 1.0])
- virtual void **SetConfidence** (double conf)=0

  Sets the object confidence value (double in range [0.0, 1.0])
- virtual bool **GetAcceptFlag** () const =0

Returns the object acceptance flag.

- virtual void **SetAcceptFlag** (bool is_accepted)=0

  Sets the object acceptance flag.

- virtual const se::common::Polygon & **GetGeometry** () const =0

  Returns the object geometry in a Polygon form, in a coordinate space of the collection in which this object is placed (const ref)

- virtual se::common::Polygon & **GetMutableGeometry** ()=0

  Returns the object geometry in a Polygon form, in a coordinate space of the collection in which this object is placed (mutable ref)

- virtual const se::common::Polygon * **GetGeometryPtr** () const =0

  the collection in which this object is placed (const ptr)

- virtual se::common::Polygon * **GetMutableGeometryPtr** ()=0

  Returns the object geometry in a Polygon form, in a coordinate space of the collection in which this object is placed (mutable ptr)

- virtual void **SetGeometry** (const se::common::Polygon &geometry)=0

  Sets the object geometry in a Polygon form, in a coordinate space of the collection in which this object is placed.

- virtual int **GetAttributesCount** () const =0

  Gets the number of attributes of the object.

- virtual bool **HasAttribute** (const char *attr_name) const =0

  Returns true iff there is an object attribute with a given name.

- virtual const char * **GetAttribute** (const char *attr_name) const =0

  Returns the value of an object attribute with a given name.

- virtual void **SetAttribute** (const char *attr_name, const char *attr_value)=0

  Sets an object attribute (key-value pair)

- virtual void **RemoveAttribute** (const char *attr_name)=0

  Removes the object attribute with a given name.

- virtual se::common::StringsMapIterator **AttributesBegin** () const =0

  Return a 'begin' map-like iterator for the object attributes.

- virtual se::common::StringsMapIterator **AttributesEnd** () const =0

  Return an 'end' map-like iterator for the object attributes.

- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object info instance with a given serializer object.

1.34.1 Detailed Description

The class representing basic information about a graphical object.

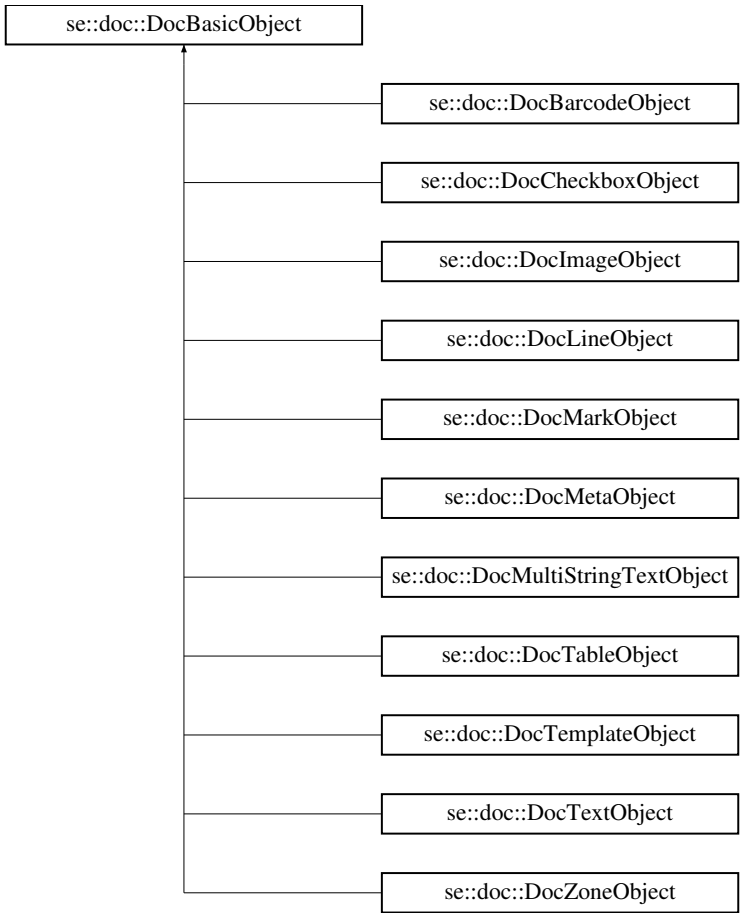
Definition at line 23 of file doc_basic_object.h.

1.35 se::doc::DocBasicObject Class Reference

The class representing a basic graphical object.

`#include <doc_basic_object.h>`

Inheritance diagram for se::doc::DocBasicObject:



Public Member Functions

- virtual ~**DocBasicObject** ()=default

  Default dtor.
- virtual const char * **ObjectType** () const =0

  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0

  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0

  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0

  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0

  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.35.1 Detailed Description

The class representing a basic graphical object.

Definition at line 81 of file doc_basic_object.h.

1.36 se::doc::DocBasicObjectsCrossSliceIterator Class Reference

Const-ref iterator for basic objects across multiple collections.

`#include <doc_basic_objects_iterator.h>`

Public Member Functions

- **DocBasicObjectsCrossSliceIterator** (const DocBasicObjectsCrossSliceIterator &other)
  Copy ctor.
- DocBasicObjectsCrossSliceIterator & **operator=** (const DocBasicObjectsCrossSliceIterator &other)
  Assignment operator.
- ~**DocBasicObjectsCrossSliceIterator** ()
  Non-trivial dtor.
- int **GetCollectionID** () const
  Returns the collection ID in which this basic object is placed.
- int **GetObjectID** () const
  Returns the basic object ID.
- const DocBasicObject & **GetBasicObject** () const
  Returns the basic object (const ref)
- const DocTagsCollection & **GetTags** () const
  Returns the tags collection of this object in its collection.
- const DocBasicObject * **GetBasicObjectPtr** () const
  Returns the basic object (const ptr)
- const DocTagsCollection * **GetTagsPtr** () const
  Returns the tags collection of this object in its collection.
- void **Advance** ()
  Switches the iterator to point on the next object.
- bool **Equals** (const DocBasicObjectsCrossSliceIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same object.
- bool **operator==** (const DocBasicObjectsCrossSliceIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same object.
- bool **operator!=** (const DocBasicObjectsCrossSliceIterator &rvalue) const
  Returns true iff this instance and rvalue point to the different objects.

Static Public Member Functions

- static DocBasicObjectsCrossSliceIterator **ConstructFromImpl** (const DocBasicObjectsCrossSliceIterator↩ Impl &pimpl)
  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocBasicObjectsCrossSliceIterator** (const DocBasicObjectsCrossSliceIteratorImpl &pimpl)
  Private ctor from internal implementation.

Private Attributes

- DocBasicObjectsCrossSliceIteratorImpl * pimpl_
  Pointer to internal implementation.

1.36.1 Detailed Description

Const-ref iterator for basic objects across multiple collections.

Definition at line 235 of file doc_basic_objects_iterator.h.

1.36.2 Member Data Documentation

pimpl_

```
DocBasicObjectsCrossSliceIteratorImpl* se::doc::DocBasicObjectsCrossSliceIterator::pimpl_↩
[private]
```

Pointer to internal implementation.

Definition at line 279 of file doc_basic_objects_iterator.h.

1.37 se::doc::DocBasicObjectsIterator Class Reference

Basic const-ref iterator for a collection of basic graphical objects.

```
#include <doc_basic_objects_iterator.h>
```

Public Member Functions

- **DocBasicObjectsIterator** (const DocBasicObjectsIterator &other)
  Copy ctor.
- DocBasicObjectsIterator & **operator=** (const DocBasicObjectsIterator &other)
  Assignment operator.
- ~**DocBasicObjectsIterator** ()
  Non-trivial dtor.
- int **GetID** () const
  Returns the basic object ID.
- const DocBasicObject & **GetBasicObject** () const
  Returns the basic object (const ref)
- const DocTagsCollection & **GetTags** () const
  Returns the tags collection of this object in its collection.
- const DocBasicObject * **GetBasicObjectPtr** () const

Returns the basic object (const ptr)

- const DocTagsCollection * **GetTagsPtr** () const

  Returns the tags collection of this object in its collection.

- void **Advance** ()

  Switches the iterator to point on the next object in its collection.

- bool **Equals** (const DocBasicObjectsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same object.

- bool **operator==** (const DocBasicObjectsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same object.

- bool **operator!=** (const DocBasicObjectsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the different objects.

Static Public Member Functions

- static DocBasicObjectsIterator **ConstructFromImpl** (const DocBasicObjectsIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocBasicObjectsIterator** (const DocBasicObjectsIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocBasicObjectsIteratorImpl * pimpl_

  Pointer to internal implementation.

1.37.1 Detailed Description

Basic const-ref iterator for a collection of basic graphical objects.

Definition at line 27 of file doc_basic_objects_iterator.h.

1.37.2 Member Data Documentation

pimpl_

```
DocBasicObjectsIteratorImpl* se::doc::DocBasicObjectsIterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 66 of file doc_basic_objects_iterator.h.

1.38 se::doc::DocBasicObjectsMutableCrossSliceIterator Class Reference

Mutable-ref iterator for basic objects across multiple collections.

```
#include <doc_basic_objects_iterator.h>
```

Public Member Functions

- **DocBasicObjectsMutableCrossSliceIterator** (const DocBasicObjectsMutableCrossSliceIterator &other)

  Copy ctor.
- DocBasicObjectsMutableCrossSliceIterator & **operator=** (const DocBasicObjectsMutableCrossSliceIterator &other)

  Assignment operator.
- ~**DocBasicObjectsMutableCrossSliceIterator** ()

  Non-trivial dtor.
- int **GetCollectionID** () const

  Returns the collection ID in which this basic object is placed.
- int **GetObjectID** () const

  Returns the basic object ID.
- const DocBasicObject & **GetBasicObject** () const

  Returns the basic object (const ref)
- DocBasicObject & **GetMutableBasicObject** ()

  Returns the basic object (mutable ref)
- const DocTagsCollection & **GetTags** () const

  Returns the tags collection of this object in its collection.
- const DocBasicObject * **GetBasicObjectPtr** () const

  Returns the basic object (const ptr)
- DocBasicObject * **GetMutableBasicObjectPtr** ()

  Returns the basic object (mutable ptr)
- const DocTagsCollection * **GetTagsPtr** () const

  Returns the tags collection of this object in its collection.
- void **Advance** ()

  Switches the iterator to point on the next object.
- bool **Equals** (const DocBasicObjectsMutableCrossSliceIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same object.
- bool **operator==** (const DocBasicObjectsMutableCrossSliceIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same object.
- bool **operator!=** (const DocBasicObjectsMutableCrossSliceIterator &rvalue) const

  Returns true iff this instance and rvalue point to the different objects.

Static Public Member Functions

- static DocBasicObjectsMutableCrossSliceIterator **ConstructFromImpl** (const DocBasicObjectsMutable↩ CrossSliceIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocBasicObjectsMutableCrossSliceIterator** (const DocBasicObjectsMutableCrossSliceIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocBasicObjectsMutableCrossSliceIteratorImpl * pimpl_

  Pointer to internal implementation.

1.38.1 Detailed Description

Mutable-ref iterator for basic objects across multiple collections.

Definition at line 290 of file doc_basic_objects_iterator.h.

1.38.2 Member Data Documentation

pimpl_

```
DocBasicObjectsMutableCrossSliceIteratorImpl* se::doc::DocBasicObjectsMutableCrossSlice↩
Iterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 340 of file doc_basic_objects_iterator.h.

1.39 se::doc::DocBasicObjectsMutableIterator Class Reference

Mutable-ref iterator for a collection of basic graphical objects.

`#include <doc_basic_objects_iterator.h>`

Public Member Functions

- **DocBasicObjectsMutableIterator** (const DocBasicObjectsMutableIterator &other)
  Copy ctor.
- DocBasicObjectsMutableIterator & **operator=** (const DocBasicObjectsMutableIterator &other)
  Assignment operator.
- ~**DocBasicObjectsMutableIterator** ()
  Non-trivial dtor.
- int **GetID** () const
  Returns the basic object ID.
- const DocBasicObject & **GetBasicObject** () const
  Returns the basic object (const ref)
- DocBasicObject & **GetMutableBasicObject** () const
  Returns the basic object (mutable ref)
- const DocTagsCollection & **GetTags** () const
  Returns the tags collection of this object in its collection.
- const DocBasicObject * **GetBasicObjectPtr** () const
  Returns the basic object (const ptr)
- DocBasicObject * **GetMutableBasicObjectPtr** () const
  Returns the basic object (mutable ptr)
- const DocTagsCollection * **GetTagsPtr** () const
  Returns the tags collection of this object in its collection.
- void **Advance** ()
  Switches the iterator to point on the next object in its collection.
- bool **Equals** (const DocBasicObjectsMutableIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same object.
- bool **operator==** (const DocBasicObjectsMutableIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same object.
- bool **operator!=** (const DocBasicObjectsMutableIterator &rvalue) const
  Returns true iff this instance and rvalue point to the different objects.

Static Public Member Functions

- static DocBasicObjectsMutableIterator **ConstructFromImpl** (const DocBasicObjectsMutableIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocBasicObjectsMutableIterator** (const DocBasicObjectsMutableIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocBasicObjectsMutableIteratorImpl * pimpl_

  Pointer to internal implementation.

1.39.1 Detailed Description

Mutable-ref iterator for a collection of basic graphical objects.

Definition at line 77 of file doc_basic_objects_iterator.h.

1.39.2 Member Data Documentation

pimpl_

```
DocBasicObjectsMutableIteratorImpl* se::doc::DocBasicObjectsMutableIterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 121 of file doc_basic_objects_iterator.h.

1.40 se::doc::DocBasicObjectsMutableSliceIterator Class Reference

Mutable-ref iterator for a basic objects which have a given tag.

```
#include <doc_basic_objects_iterator.h>
```

Public Member Functions

- **DocBasicObjectsMutableSliceIterator** (const DocBasicObjectsMutableSliceIterator &other)

  Copy ctor.
- DocBasicObjectsMutableSliceIterator & **operator=** (const DocBasicObjectsMutableSliceIterator &other)

  Assignment operator.
- ~**DocBasicObjectsMutableSliceIterator** ()

  Non-trivial dtor.
- int **GetID** () const

  Returns the basic object ID.
- const DocBasicObject & **GetBasicObject** () const

  Returns the basic object (const ref)
- DocBasicObject & **GetMutableBasicObject** () const

  Returns the basic object (mutable ref)
- const DocTagsCollection & **GetTags** () const

  Returns the tags collection of this object in its collection.
- const DocBasicObject * **GetBasicObjectPtr** () const

  Returns the basic object (const ptr)
- DocBasicObject * **GetMutableBasicObjectPtr** () const

  Returns the basic object (mutable ptr)
- const DocTagsCollection * **GetTagsPtr** () const

  Returns the tags collection of this object in its collection.
- void **Advance** ()

  Switches the iterator to point on the next object in its collection.
- bool **Finished** () const

  Returns true iff the iterator points to the end of the subset of objects with a given tag.

Static Public Member Functions

- static DocBasicObjectsMutableSliceIterator **ConstructFromImpl** (const DocBasicObjectsMutableSlice↩ IteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocBasicObjectsMutableSliceIterator** (const DocBasicObjectsMutableSliceIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocBasicObjectsMutableSliceIteratorImpl * pimpl_

  Pointer to internal implementation.

1.40.1 Detailed Description

Mutable-ref iterator for a basic objects which have a given tag.

Definition at line 181 of file doc_basic_objects_iterator.h.

1.40.2 Member Data Documentation

pimpl_

```
DocBasicObjectsMutableSliceIteratorImpl* se::doc::DocBasicObjectsMutableSliceIterator::pimpl_
[private]
```

Pointer to internal implementation.

Definition at line 224 of file doc_basic_objects_iterator.h.

1.41 se::doc::DocBasicObjectsSliceIterator Class Reference

Const-ref iterator for a basic objects which have a given tag.

```
#include <doc_basic_objects_iterator.h>
```

Public Member Functions

- **DocBasicObjectsSliceIterator** (const DocBasicObjectsSliceIterator &other)
  Copy ctor.
- DocBasicObjectsSliceIterator & **operator=** (const DocBasicObjectsSliceIterator &other)
  Assignment operator.
- ~**DocBasicObjectsSliceIterator** ()
  Non-trivial dtor.
- int **GetID** () const
  Returns the basic object ID.
- const DocBasicObject & **GetBasicObject** () const
  Returns the basic object (const ref)
- const DocTagsCollection & **GetTags** () const
  Returns the tags collection of this object in its collection.
- const DocBasicObject * **GetBasicObjectPtr** () const
  Returns the basic object (const ptr)
- const DocTagsCollection * **GetTagsPtr** () const
  Returns the tags collection of this object in its collection.
- void **Advance** ()
  Switches the iterator to point on the next object in its collection.
- bool **Finished** () const
  Returns true iff the iterator points to the end of the subset of objects with a given tag.

Static Public Member Functions

- static DocBasicObjectsSliceIterator **ConstructFromImpl** (const DocBasicObjectsSliceIteratorImpl &pimpl)
  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocBasicObjectsSliceIterator** (const DocBasicObjectsSliceIteratorImpl &pimpl)
  Private ctor from internal implementation.

Private Attributes

- DocBasicObjectsSliceIteratorImpl * pimpl_

  Pointer to internal implementation.

1.41.1 Detailed Description

Const-ref iterator for a basic objects which have a given tag.

Definition at line 133 of file doc_basic_objects_iterator.h.

1.41.2 Member Data Documentation

pimpl_

```
DocBasicObjectsSliceIteratorImpl* se::doc::DocBasicObjectsSliceIterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 170 of file doc_basic_objects_iterator.h.

1.42 se::doc::DocCheckboxField Class Reference

The class representing a checkbox field of a document.

```
#include <doc_fields.h>
```

Public Member Functions

- virtual ~**DocCheckboxField** ()=default

  Default dtor.
- virtual const DocBaseFieldInfo & **GetBaseFieldInfo** () const =0

  Returns the basic field information (const ref)
- virtual DocBaseFieldInfo & **GetMutableBaseFieldInfo** ()=0

  Returns the basic field information (mutable ref)
- virtual const DocBaseFieldInfo * **GetBaseFieldInfoPtr** () const =0

  Returns the basic field information (const ptr)
- virtual DocBaseFieldInfo * **GetMutableBaseFieldInfoPtr** ()=0

  Returns the basic field information (mutable ptr)
- virtual bool **GetTickStatus** () const =0

  Returns a boolean ticked status of a checkbox.
- virtual void **SetTickStatus** (bool tick_status)=0

  Sets a ticked status of a checkbox.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the field instance with a given serializer object.

1.42.1 Detailed Description

The class representing a checkbox field of a document.

Definition at line 191 of file doc_fields.h.

1.43 se::doc::DocCheckboxFieldsIterator Class Reference

Const-ref iterator for a collection of checkbox fields.

`#include <doc_fields_iterators.h>`

Public Member Functions

- **DocCheckboxFieldsIterator** (const DocCheckboxFieldsIterator &other)
  Copy ctor.
- DocCheckboxFieldsIterator & **operator=** (const DocCheckboxFieldsIterator &other)
  Assignment operator.
- ∼**DocCheckboxFieldsIterator** ()
  Non-trivial dtor.
- const char ∗ **GetKey** () const
  Returns the field name (the collection key)
- const DocCheckboxField & **GetField** () const
  Returns the field value (const ref)
- const DocCheckboxField ∗ **GetFieldPtr** () const
  Returns the field value (const ptr)
- void **Advance** ()
  Switches the iterator to point on the next field in its collection.
- void **operator++** ()
  Switches the iterator to point on the next field in its collection.
- bool **Equals** (const DocCheckboxFieldsIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same field.
- bool **operator==** (const DocCheckboxFieldsIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same field.
- bool **operator!=** (const DocCheckboxFieldsIterator &rvalue) const
  Returns true iff this instance and rvalue point to the different fields.

Static Public Member Functions

- static DocCheckboxFieldsIterator **ConstructFromImpl** (const DocCheckboxFieldsIteratorImpl &pimpl)
  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocCheckboxFieldsIterator** (const DocCheckboxFieldsIteratorImpl &pimpl)
  Private ctor from internal implementation.

Private Attributes

- class DocCheckboxFieldsIteratorImpl * pimpl_

  Pointer to internal implementation.

1.43.1 Detailed Description

Const-ref iterator for a collection of checkbox fields.

Definition at line 122 of file doc_fields_iterators.h.

1.43.2 Member Data Documentation

pimpl_

```
class DocCheckboxFieldsIteratorImpl* se::doc::DocCheckboxFieldsIterator::pimpl_  [private]
```

Pointer to internal implementation.

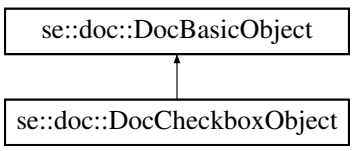
Definition at line 159 of file doc_fields_iterators.h.

1.44 se::doc::DocCheckboxObject Class Reference

The graphical object representing a checkbox.

```
#include <doc_objects.h>
```

Inheritance diagram for se::doc::DocCheckboxObject:



Public Member Functions

- virtual ~**DocCheckboxObject** () override=default

  Default dtor.
- virtual const se::common::OcrString & **GetOcrString** () const =0

  Returns the OcrString representation of the analysis result (const ref)
- virtual se::common::OcrString & **GetMutableOcrString** ()=0

  Returns the OcrString representation of the analysis result (mutable ref)
- virtual const se::common::OcrString * **GetOcrStringPtr** () const =0

  Returns the text line recognitino result (const ptr)
- virtual se::common::OcrString * **GetMutableOcrStringPtr** ()=0

  Returns the text line recognitino result (mutable ptr)
- virtual void **SetOcrString** (const se::common::OcrString &ocrstring)=0

  Sets the OcrString representation of the analysis result.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default

  Default dtor.
- virtual const char * **ObjectType** () const =0

  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0

  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0

  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0

  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0

  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()

  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.44.1 Detailed Description

The graphical object representing a checkbox.

Definition at line 48 of file doc_objects.h.

1.45 se::doc::DocEngine Class Reference

The main DocEngine class containing all configuration and resources of the Smart Document Engine.

`#include <doc_engine.h>`

Public Member Functions

- virtual ~**DocEngine** ()=default

  Default dtor.
- virtual DocSessionSettings * CreateSessionSettings () const =0

  Creates a Session Settings object with default processing and recognition settings, specified in the configuration bundle.
- virtual DocSession * SpawnSession (const DocSessionSettings &settings, const char *signature, DocFeedback *feedback_reporter=nullptr, DocExternalProcessorInterface *external_processor=nullptr) const =0

  Spawns a new documents recognition session.
- virtual DocSessionSettings * CreateVideoSessionSettings () const =0

  Creates a Video Session Settings object with default processing and recognition settings for a sequence of video frames, specified in the configuration bundle.
- virtual DocVideoSession * SpawnVideoSession (const DocSessionSettings &settings, const char *signature, DocFeedback *feedback_reporter=nullptr) const =0

  Spawns a new video stream document recognition session.

Static Public Member Functions

- static DocEngine * Create (const char *config_path, bool lazy_configuration=true)

  The factory method for creating the DocEngine object with a configuration bundle file.
- static DocEngine * Create (unsigned char *config_data, int config_data_length, bool lazy_configuration=true)

  The factory method for creating the DocEngine object with a configuration bundle buffer.
- static DocEngine * CreateFromEmbeddedBundle (bool lazy_configuration=true)

  The factory method for creating the DocEngine object with a configuration bundle buffer embedded within the library.
- static const char * GetVersion ()

  Returns the Smart Document Engine version number.

1.45.1 Detailed Description

The main DocEngine class containing all configuration and resources of the Smart Document Engine.

Definition at line 24 of file doc_engine.h.

1.45.2 Member Function Documentation

CreateSessionSettings()

```
virtual DocSessionSettings * se::doc::DocEngine::CreateSessionSettings () const  [pure virtual]
```

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

Returns

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

SpawnSession()

```
virtual DocSession * se::doc::DocEngine::SpawnSession (
            const DocSessionSettings & settings,
            const char * signature,
            DocFeedback * feedback_reporter = nullptr,
            DocExternalProcessorInterface * external_processor = nullptr) const  [pure virtual]
```

Spawns a new documents recognition session.

Parameters

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

Returns

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

CreateVideoSessionSettings()

```
virtual DocSessionSettings * se::doc::DocEngine::CreateVideoSessionSettings () const  [pure
virtual]
```

Creates a Video Session Settings object with default processing and recognition settings for a sequence of video frames, specified in the configuration bundle.

Returns

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

SpawnVideoSession()

```
virtual DocVideoSession * se::doc::DocEngine::SpawnVideoSession (
            const DocSessionSettings & settings,
            const char * signature,
            DocFeedback * feedback_reporter = nullptr) const  [pure virtual]
```

Spawns a new video stream document recognition session.

Parameters

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

Returns

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

Create() [1/2]

```
static DocEngine * se::doc::DocEngine::Create (
            const char * config_path,
            bool lazy_configuration = true)  [static]
```

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

Parameters

config_path	- filesystem path to an engine configuration bundle
lazy_configuration	- 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.

Returns

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

Create() [2/2]

```
static DocEngine * se::doc::DocEngine::Create (
            unsigned char * config_data,
            int config_data_length,
            bool lazy_configuration = true)  [static]
```

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

Parameters

config_data	- pointer to the configuration bundle file buffer.
config_data_length	- size of the configuration buffer in bytes.
lazy_configuration	- 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.

Returns

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

CreateFromEmbeddedBundle()

```
static DocEngine * se::doc::DocEngine::CreateFromEmbeddedBundle (
            bool lazy_configuration = true)  [static]
```

The factory method for creating the DocEngine object with a configuration bundle buffer embedded within the library.

Parameters

lazy_configuration	- 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.

Returns

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

GetVersion()

```
static const char * se::doc::DocEngine::GetVersion ()  [static]
```

Returns the Smart Document Engine version number.

Returns

Smart Document Engine version number string

1.46 se::doc::DocExternalProcessorInterface Class Reference

The abstract interface for custom document processor.

`#include <doc_external_processor.h>`

Public Member Functions

- virtual ~**DocExternalProcessorInterface** ()=default

  Default dtor.
- virtual void Process (DocResult &recognition_result, const DocProcessingSettings &processing_settings, const DocProcessingArguments &processing_arguments)=0

  Processes the current result structure with a given processing settings and arguments. Needs to be implemented in a derived custom processing class.

1.46.1 Detailed Description

The abstract interface for custom document processor.

Definition at line 44 of file doc_external_processor.h.

1.46.2 Member Function Documentation

Process()

```
virtual void se::doc::DocExternalProcessorInterface::Process (
            DocResult & recognition_result,
            const DocProcessingSettings & processing_settings,
            const DocProcessingArguments & processing_arguments)  [pure virtual]
```

Processes the current result structure with a given processing settings and arguments. Needs to be implemented in a derived custom processing class.

Parameters

recognition_result	- mutable current document processing and recognition result structure.
processing_settings	- current source processing settings
processing_arguments	- processing arguments for the current custom document processor

1.47 se::doc::DocFeedback Class Reference

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

`#include <doc_feedback.h>`

Public Member Functions

- virtual ~**DocFeedback** ()=default

  Default dtor.
- virtual void FeedbackReceived (const DocFeedbackContainer &container)=0

  Callback for receiving custom feedback container.
- virtual bool **AcceptsPagesLocalizationFeedback** () const

  Returns true if localization feedback is needed Returns true by default.
- virtual void PagesLocalizationFeedbackReceived (const DocPagesFeedbackContainer &container) const =0

  Callback for receiving feedback container with pages localization results.
- virtual bool **AcceptsPagePreprocessingFeedback** () const

  Returns true if page preprocessing feedback is needed Returns true by default.
- virtual void PagePrepocessingFeedbackReceived (const DocPagesFeedbackContainer &container) const =0

  Callback for receiving feedback container with pages preprocessing results.
- virtual bool **AcceptsRawFieldsLocalizationFeedback** () const

  Returns true if fields' localization feedback is needed Returns true by default.
- virtual void RawFieldsLocalizationFeedbackReceived (const DocRawFieldsFeedbackContainer &container) const =0

  Callback for receiving feedback container with raw fields localization results.
- virtual bool **AcceptsRawFieldsRecognitionFeedback** () const

  Returns true if fields' raw recognition feedback is needed Returns true by default.
- virtual void RawFiedlsRecognitionFeedbackReceived (const DocRawFieldsFeedbackContainer &container) const =0

  Callback for receiving feedback container with raw fields recognition results.
- virtual void ResultReceived (const DocResult &result_received)=0

  Callback for receiving an updated stream recognition result.

1.47.1 Detailed Description

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

Definition at line 118 of file doc_feedback.h.

1.47.2 Member Function Documentation

FeedbackReceived()

```
virtual void se::doc::DocFeedback::FeedbackReceived (
            const DocFeedbackContainer & container)  [pure virtual]
```

Callback for receiving custom feedback container.

Parameters

container	- the received feedback container

PagesLocalizationFeedbackReceived()

```
virtual void se::doc::DocFeedback::PagesLocalizationFeedbackReceived (
            const DocPagesFeedbackContainer & container) const  [pure virtual]
```

Callback for receiving feedback container with pages localization results.

Parameters

container	- the received feedback container

PagePrepocessingFeedbackReceived()

```
virtual void se::doc::DocFeedback::PagePrepocessingFeedbackReceived (
            const DocPagesFeedbackContainer & container) const  [pure virtual]
```

Callback for receiving feedback container with pages preprocessing results.

Parameters

container	- the received feedback container

RawFieldsLocalizationFeedbackReceived()

```
virtual void se::doc::DocFeedback::RawFieldsLocalizationFeedbackReceived (
            const DocRawFieldsFeedbackContainer & container) const  [pure virtual]
```

Callback for receiving feedback container with raw fields localization results.

Parameters

container	- the received feedback container

RawFiedlsRecognitionFeedbackReceived()

```
virtual void se::doc::DocFeedback::RawFiedlsRecognitionFeedbackReceived (
            const DocRawFieldsFeedbackContainer & container) const  [pure virtual]
```

Callback for receiving feedback container with raw fields recognition results.

Parameters

container	- the received feedback container

ResultReceived()

```
virtual void se::doc::DocFeedback::ResultReceived (
            const DocResult & result_received)  [pure virtual]
```

Callback for receiving an updated stream recognition result.

Parameters

result_received	- the received recognition result

1.48 se::doc::DocFeedbackContainer Class Reference

The class representing a custom feedback container. Not implemented in the current version of Smart Document Engine.

`#include <doc_feedback.h>`

Public Member Functions

- virtual ~**DocFeedbackContainer** ()=default

  Default dtor.
- virtual se::common::StringsMapIterator **FeedbackFieldIteratorBegin** () const =0

  Returns a begin-iterator for an internal collection of feedback text fields.
- virtual se::common::StringsMapIterator **FeedbackFieldIteratorEnd** () const =0

  Returns a end-iterator for an internal collection of feedback text fields.
- virtual se::common::QuadranglesMapIterator **FeedbackQuadIteratorBegin** () const =0

  Returns a begin-iterator for an internal collection of feedback quadrangles.
- virtual se::common::QuadranglesMapIterator **FeedbackQuadIteratorEnd** () const =0

  Returns a end-iterator for an internal collection of feedback quadrangles.
- virtual void **SetFeedbackField** (const char *key, const char *field)=0

  Feedback field setter.
- virtual void **SetFeedbackQuad** (const char *key, const se::common::Quadrangle &quad)=0

  Feedback quad setter.

1.48.1 Detailed Description

The class representing a custom feedback container. Not implemented in the current version of Smart Document Engine.

Definition at line 95 of file doc_feedback.h.

1.49 se::doc::DocForensicCheckField Class Reference

The class representing a forensic check field of a document.

`#include <doc_fields.h>`

Public Member Functions

- virtual ~**DocForensicCheckField** ()=default

  Default dtor.
- virtual const DocBaseFieldInfo & **GetBaseFieldInfo** () const =0

  Returns the basic field information (const ref)
- virtual DocBaseFieldInfo & **GetMutableBaseFieldInfo** ()=0

  Returns the basic field information (mutable ref)
- virtual const DocBaseFieldInfo * **GetBaseFieldInfoPtr** () const =0

  Returns the basic field information (const ptr)
- virtual DocBaseFieldInfo * **GetMutableBaseFieldInfoPtr** ()=0

  Returns the basic field information (mutable ptr)
- virtual const char * **GetStatus** () const =0

  Returns a forensic field value.
- virtual void **SetStatus** (const char *status)=0

  Sets a forensic field value.
- virtual int **GetAttributesCount** () const =0

  Returns the number of field attributes.
- virtual se::common::StringsMapIterator **AttributesBegin** () const =0

  Returns a 'begin' map-like iterator to the collection of field attributes.
- virtual se::common::StringsMapIterator **AttributesEnd** () const =0

  Returns an 'end' map-like iterator to the collection of field attributes.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the field instance with a given serializer object.

1.49.1 Detailed Description

The class representing a forensic check field of a document.

Definition at line 244 of file doc_fields.h.

1.50 se::doc::DocForensicCheckFieldsIterator Class Reference

Const-ref iterator for a collection of forensic check fields.

`#include <doc_fields_iterators.h>`

Public Member Functions

- **DocForensicCheckFieldsIterator** (const DocForensicCheckFieldsIterator &other)

  Copy ctor.
- DocForensicCheckFieldsIterator & **operator=** (const DocForensicCheckFieldsIterator &other)

  Assignment operator.
- ~**DocForensicCheckFieldsIterator** ()

  Non-trivial dtor.
- const char * **GetKey** () const

  Returns the field name (the collection key)
- const DocForensicCheckField & **GetField** () const

  Returns the field value (const ref)

- const DocForensicCheckField * **GetFieldPtr** () const

  Returns the field value (const ptr)
- void **Advance** ()

  Switches the iterator to point on the next field in its collection.
- void **operator++** ()

  Switches the iterator to point on the next field in its collection.
- bool **Equals** (const DocForensicCheckFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same field.
- bool **operator==** (const DocForensicCheckFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same field.
- bool **operator!=** (const DocForensicCheckFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the different fields.

Static Public Member Functions

- static DocForensicCheckFieldsIterator **ConstructFromImpl** (const DocForensicCheckFieldsIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocForensicCheckFieldsIterator** (const DocForensicCheckFieldsIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- class DocForensicCheckFieldsIteratorImpl * pimpl_

  Pointer to internal implementation.

1.50.1 Detailed Description

Const-ref iterator for a collection of forensic check fields.

Definition at line 217 of file doc_fields_iterators.h.

1.50.2 Member Data Documentation

pimpl_

```
class DocForensicCheckFieldsIteratorImpl* se::doc::DocForensicCheckFieldsIterator::pimpl_↩
[private]
```

Pointer to internal implementation.

Definition at line 254 of file doc_fields_iterators.h.

1.51 se::doc::DocForensicField Class Reference

The class representing a forensic field of a document.

`#include <doc_fields.h>`

Public Member Functions

- virtual ~**DocForensicField** ()=default

  Default dtor.
- virtual const DocBaseFieldInfo & **GetBaseFieldInfo** () const =0

  Returns the basic field information (const ref)
- virtual DocBaseFieldInfo & **GetMutableBaseFieldInfo** ()=0

  Returns the basic field information (mutable ref)
- virtual const DocBaseFieldInfo * **GetBaseFieldInfoPtr** () const =0

  Returns the basic field information (const ptr)
- virtual DocBaseFieldInfo * **GetMutableBaseFieldInfoPtr** ()=0

  Returns the basic field information (mutable ptr)
- virtual const char * **GetStatus** () const =0

  Returns a forensic field value.
- virtual void **SetStatus** (const char *status)=0

  Sets a forensic field value.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the field instance with a given serializer object.

1.51.1 Detailed Description

The class representing a forensic field of a document.

Definition at line 218 of file doc_fields.h.

1.52 se::doc::DocForensicFieldsIterator Class Reference

Const-ref iterator for a collection of forensic fields.

`#include <doc_fields_iterators.h>`

Public Member Functions

- **DocForensicFieldsIterator** (const DocForensicFieldsIterator &other)

  Copy ctor.
- DocForensicFieldsIterator & **operator=** (const DocForensicFieldsIterator &other)

  Assignment operator.
- ~**DocForensicFieldsIterator** ()

  Non-trivial dtor.
- const char * **GetKey** () const

  Returns the field name (the collection key)
- const DocForensicField & **GetField** () const

  Returns the field value (const ref)
- const DocForensicField * **GetFieldPtr** () const

  Returns the field value (const ptr)
- void **Advance** ()

  Switches the iterator to point on the next field in its collection.
- void **operator++** ()

  Switches the iterator to point on the next field in its collection.
- bool **Equals** (const DocForensicFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same field.
- bool **operator==** (const DocForensicFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same field.
- bool **operator!=** (const DocForensicFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the different fields.

Static Public Member Functions

- static DocForensicFieldsIterator **ConstructFromImpl** (const DocForensicFieldsIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocForensicFieldsIterator** (const DocForensicFieldsIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- class DocForensicFieldsIteratorImpl * pimpl_

  Pointer to internal implementation.

1.52.1 Detailed Description

Const-ref iterator for a collection of forensic fields.

Definition at line 170 of file doc_fields_iterators.h.

1.52.2 Member Data Documentation

pimpl_

```
class DocForensicFieldsIteratorImpl* se::doc::DocForensicFieldsIterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 207 of file doc_fields_iterators.h.

1.53 se::doc::DocGraphicalStructure Class Reference

The class represting a graphical structure - a result of graphical document processing and graphical objects extraction.

```
#include <doc_graphical_structure.h>
```

Public Member Functions

- virtual ~**DocGraphicalStructure** ()=default

  Default dtor.
- virtual int **GetCollectionsCount** () const =0

  Returns the number of object collections.
- virtual bool **HasCollection** (int c_id) const =0

  Returns true iff there is a collection with a given ID.
- virtual const DocObjectsCollection & **GetCollection** (int c_id) const =0

  Returns the collection with a given ID (const ref)
- virtual DocObjectsCollection & **GetMutableCollection** (int c_id)=0

  Returns the collection with a given ID (mutable ref)
- virtual const DocTagsCollection & **GetCollectionTags** (int c_id) const =0

  Returns the tags associated with a collection with a given ID.
- virtual const DocObjectsCollection * **GetCollectionPtr** (int c_id) const =0

  Returns the collection with a given ID (const ptr)
- virtual DocObjectsCollection * **GetMutableCollectionPtr** (int c_id)=0

  Returns the collection with a given ID (mutable ptr)
- virtual const DocTagsCollection * **GetCollectionTagsPtr** (int c_id) const =0

  Returns the tags associated with a collection with a given ID.
- virtual DocObjectsCollectionsMutableIterator **AddCollection** (const DocObjectsCollection &collection)=0

  Adds a new object collection to the graphical structure.
- virtual DocObjectsCollectionsMutableIterator **AddCollection** (const DocObjectsCollection &collection, const DocTagsCollection &tags)=0

  Adds a new object collection to the graphical structure.
- virtual void **SetCollection** (int c_id, const DocObjectsCollection &collection)=0

  Sets a new object collection by the given ID.
- virtual void **RemoveCollection** (int c_id)=0

  Removes the object collection with a given ID.
- virtual DocObjectsCollectionsIterator **ObjectsCollectionsBegin** () const =0

  Returns a constant 'begin' iterator to the object collections.
- virtual DocObjectsCollectionsIterator **ObjectsCollectionsEnd** () const =0

  Returns a constant 'end' iterator to the object collections.

- virtual DocObjectsCollectionsMutableIterator **MutableObjectsCollectionsBegin** ()=0

  Returns a mutable 'begin' iterator to the object collections.
- virtual DocObjectsCollectionsMutableIterator **MutableObjectsCollectionsEnd** ()=0

  Returns a mutable 'end' iterator to the object collections.
- virtual DocObjectsCollectionsSliceIterator **ObjectsCollectionsSlice** (const char *tag) const =0

  Returns a const iterator to the object collections with a given tag.
- virtual DocObjectsCollectionsMutableSliceIterator **MutableObjectsCollectionsSlice** (const char *tag)=0

  Returns a mutable iterator to the object collections with a given tag.
- virtual const DocViewsCollection & **GetViewsCollection** () const =0

  Returns the collection of view in the graphical structure (const ref)
- virtual DocViewsCollection & **GetMutableViewsCollection** ()=0

  Returns the collection of view in the graphical structure (mutable ref)
- virtual const DocViewsCollection * **GetViewsCollectionPtr** () const =0

  Returns the collection of view in the graphical structure (const ptr)
- virtual DocViewsCollection * **GetMutableViewsCollectionPtr** ()=0

  Returns the collection of view in the graphical structure (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the instance with a given serializer object.

1.53.1 Detailed Description

The class represting a graphical structure - a result of graphical document processing and graphical objects extraction.

Definition at line 25 of file doc_graphical_structure.h.

1.54 se::doc::DocImageField Class Reference

The class representing an image field of a document.

`#include <doc_fields.h>`

Public Member Functions

- virtual ~**DocImageField** ()=default

  Default dtor.
- virtual const DocBaseFieldInfo & **GetBaseFieldInfo** () const =0

  Returns the basic field information (const ref)
- virtual DocBaseFieldInfo & **GetMutableBaseFieldInfo** ()=0

  Returns the basic field information (mutable ref)
- virtual const DocBaseFieldInfo * **GetBaseFieldInfoPtr** () const =0

  Returns the basic field information (const ptr)
- virtual DocBaseFieldInfo * **GetMutableBaseFieldInfoPtr** ()=0

  Returns the basic field information (mutable ptr)
- virtual const se::common::Image & **GetImage** () const =0

  Returns the image representation of a field (const ref)
- virtual se::common::Image & **GetMutableImage** ()=0

  Returns the image representation of a field (mutable ref)
- virtual const se::common::Image * **GetImagePtr** () const =0

Returns the image representation of a field (const ptr)

- virtual se::common::Image * **GetMutableImagePtr** ()=0

  Returns the image representation of a field (mutable ptr)
- virtual void **SetImage** (const se::common::Image &image)=0

  Sets the image representation of a field.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the field instance with a given serializer object.

1.54.1 Detailed Description

The class representing an image field of a document.

Definition at line 158 of file doc_fields.h.

1.55 se::doc::DocImageFieldsIterator Class Reference

Const-ref iterator for a collection of image fields.

`#include <doc_fields_iterators.h>`

Public Member Functions

- **DocImageFieldsIterator** (const DocImageFieldsIterator &other)

  Copy ctor.
- DocImageFieldsIterator & **operator=** (const DocImageFieldsIterator &other)

  Assignment operator.
- ~**DocImageFieldsIterator** ()

  Non-trivial dtor.
- const char * **GetKey** () const

  Returns the field name (the collection key)
- const DocImageField & **GetField** () const

  Returns the field value (const ref)
- const DocImageField * **GetFieldPtr** () const

  Returns the field value (const ptr)
- void **Advance** ()

  Switches the iterator to point on the next field in its collection.
- void **operator++** ()

  Switches the iterator to point on the next field in its collection.
- bool **Equals** (const DocImageFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same field.
- bool **operator==** (const DocImageFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same field.
- bool **operator!=** (const DocImageFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the different fields.

Static Public Member Functions

- static DocImageFieldsIterator **ConstructFromImpl** (const DocImageFieldsIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocImageFieldsIterator** (const DocImageFieldsIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- class DocImageFieldsIteratorImpl * pimpl_

  Pointer to internal implementation.

1.55.1 Detailed Description

Const-ref iterator for a collection of image fields.

Definition at line 74 of file doc_fields_iterators.h.

1.55.2 Member Data Documentation

pimpl_

```
class DocImageFieldsIteratorImpl* se::doc::DocImageFieldsIterator::pimpl_  [private]
```

Pointer to internal implementation.

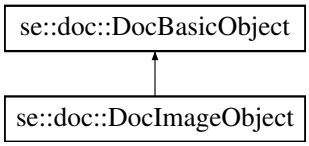
Definition at line 111 of file doc_fields_iterators.h.

1.56 se::doc::DocImageObject Class Reference

The graphical object representing an image region of a document.

```
#include <doc_objects.h>
```

Inheritance diagram for se::doc::DocImageObject:



Public Member Functions

- virtual ~**DocImageObject** () override=default

  Default dtor.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default

  Default dtor.
- virtual const char * **ObjectType** () const =0

  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0

  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0

  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0

  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0

  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()

  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.56.1 Detailed Description

The graphical object representing an image region of a document.

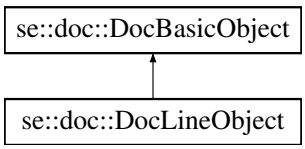
Definition at line 220 of file doc_objects.h.

1.57 se::doc::DocLineObject Class Reference

The graphical object representing a straight line segment.

`#include <doc_objects.h>`

Inheritance diagram for se::doc::DocLineObject:



Public Member Functions

- virtual ~**DocLineObject** () override=default
  Default dtor.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default
  Default dtor.
- virtual const char * **ObjectType** () const =0
  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0
  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0
  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0
  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0
  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0
  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()
  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()
  Static class name method, returns 'DocBasicObject'.

1.57.1 Detailed Description

The graphical object representing a straight line segment.

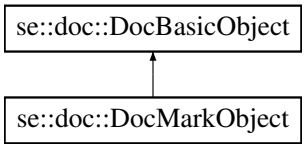
Definition at line 85 of file doc_objects.h.

1.58 se::doc::DocMarkObject Class Reference

The graphical object representing a remark or correction on a document.

`#include <doc_objects.h>`

Inheritance diagram for se::doc::DocMarkObject:



Public Member Functions

- virtual ~**DocMarkObject** () override=default
  Default dtor.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default
  Default dtor.
- virtual const char * **ObjectType** () const =0
  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0
  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0
  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0
  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0
  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0
  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()
  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()
  Static class name method, returns 'DocBasicObject'.

1.58.1 Detailed Description

The graphical object representing a remark or correction on a document.

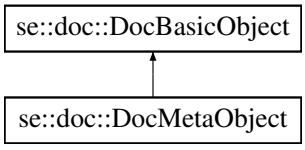
Definition at line 256 of file doc_objects.h.

1.59 se::doc::DocMetaObject Class Reference

The graphical object representing a meta object.

`#include <doc_objects.h>`

Inheritance diagram for se::doc::DocMetaObject:



Public Member Functions

- virtual ~**DocMetaObject** () override=default

  Default dtor.
- virtual const se::common::OcrString & **GetOcrString** () const =0

  Returns the OcrString representation (const ref)
- virtual se::common::OcrString & **GetMutableOcrString** ()=0

  Returns the OcrString representation (mutable ref)
- virtual const se::common::OcrString * **GetOcrStringPtr** () const =0

  Returns the text line recognitino result (const ptr)
- virtual se::common::OcrString * **GetMutableOcrStringPtr** ()=0

  Returns the text line recognitino result (mutable ptr)
- virtual void **SetOcrString** (const se::common::OcrString &ocrstring)=0

  Sets the OcrString representation.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default

  Default dtor.
- virtual const char * **ObjectType** () const =0

  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0

  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0

  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0

  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0

  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()

  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.59.1 Detailed Description

The graphical object representing a meta object.

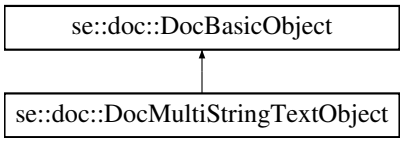
Definition at line 152 of file doc_objects.h.

1.60 se::doc::DocMultiStringTextObject Class Reference

The graphical object representing a text object with multiple lines.

`#include <doc_objects.h>`

Inheritance diagram for se::doc::DocMultiStringTextObject:



Public Member Functions

- virtual ~**DocMultiStringTextObject** () override=default

  Default dtor.
- virtual int **GetStringsCount** () const =0

  Return the number of text lines.
- virtual void **SetStringsCount** (int count)=0

  Sets the number of text lines.
- virtual const DocTextObject & **GetStringObject** (int index) const =0

  Returns the text object by line index (const ref)
- virtual DocTextObject & **GetMutableStringObject** (int index)=0

  Returns the text object by line index (mutable ref)
- virtual const DocTextObject * **GetStringObjectPtr** (int index) const =0

  Returns the text object by line index (const ptr)
- virtual DocTextObject * **GetMutableStringObjectPtr** (int index)=0

  Returns the text object by line index (mutable ptr)
- virtual void **SetStringObject** (int index, const DocTextObject &text_object)=0

  Sets the text object by line index.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default

  Default dtor.
- virtual const char * **ObjectType** () const =0

  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0

  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0

  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0

  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0

  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()

  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.60.1 Detailed Description

The graphical object representing a text object with multiple lines.

Definition at line 122 of file doc_objects.h.

1.61 se::doc::DocObjectsCollection Class Reference

The class representing a collection of graphical objects.

```
#include <doc_objects_collection.h>
```

Public Member Functions

- virtual DocBasicObject * CreateObject () const =0

  Factory method, creates a new graphical object of the type stored in this object collection instance.
- virtual ~**DocObjectsCollection** ()=default

  Default dtor.
- virtual DocObjectsCollection * Clone () const =0

  Clones the collection, returning a deep copy.
- virtual const char * **ObjectType** () const =0

  Returns the name of the stored graphical object type.
- virtual int **GetFrameID** () const =0

  Returns the view ID on which the collected objects are placed.
- virtual void **SetFrameID** (int frame_id)=0

  Sets the view ID on which the collected objects are placed.
- virtual int **GetObjectsCount** () const =0

  Returns the number of stored objects.
- virtual bool **HasObject** (int obj_id) const =0

  Returns true iff there is a stored object with a given ID.
- virtual const DocBasicObject & **GetObject** (int obj_id) const =0

  Returns the object with a given ID (const ref)
- virtual DocBasicObject & **GetMutableObject** (int obj_id)=0

  Returns the object with a given ID (mutable ref)
- virtual const DocBasicObject * **GetObjectPtr** (int obj_id) const =0

  Returns the object with a given ID (const ptr)
- virtual DocBasicObject * **GetMutableObjectPtr** (int obj_id)=0

  Returns the object with a given ID (mutable ptr)

- virtual const DocTagsCollection & **GetObjectTags** (int obj_id) const =0

  Returns the tags collection associated with an object with a given ID.
- virtual const DocTagsCollection * **GetObjectTagsPtr** (int obj_id) const =0

  Returns the tags collection associated with an object with a given ID.
- virtual DocBasicObjectsMutableIterator **AddObject** (const DocBasicObject &obj)=0

  Adds a new object to the collection.
- virtual void **SetObject** (int obj_id, const DocBasicObject &obj)=0

  Sets an object value with a given ID.
- virtual void **RemoveObject** (int obj_id)=0

  Removes an object with a given ID.
- virtual void **RemoveObjectDeep** (int obj_id, DocViewsCollection &views_collection)=0

  Removes an object with a given ID and removes the view associated with the removed object.
- virtual DocBasicObjectsIterator **BasicObjectsBegin** () const =0

  Returns a constant 'begin' iterator to the collection of objects.
- virtual DocBasicObjectsIterator **BasicObjectsEnd** () const =0

  Returns a constant 'end' iterator to the collection of objects.
- virtual DocBasicObjectsMutableIterator **MutableBasicObjectsBegin** ()=0

  Returns a mutable 'begin' iterator to the collection of objects.
- virtual DocBasicObjectsMutableIterator **MutableBasicObjectsEnd** ()=0

  Returns a mutable 'end' iterator to the collection of objects.
- virtual DocBasicObjectsSliceIterator **BasicObjectsSlice** (const char *tag) const =0

  Returns a constant iterator to the subset of objects with a given tag.
- virtual DocBasicObjectsMutableSliceIterator **MutableBasicObjectsSlice** (const char *tag)=0

  Returns a mutable iterator to the subset of objects with a given tag.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the collection instance with a given serializer object.

Static Public Member Functions

- static const char * **BaseClassNameStatic** ()

  Service method, returns the object name.
- static DocObjectsCollection * Create (const char *object_type)

  Factory method, creates a new collection for objects with a given object type name.

1.61.1 Detailed Description

The class representing a collection of graphical objects.

Definition at line 27 of file doc_objects_collection.h.

1.61.2 Member Function Documentation

Create()

```
static DocObjectsCollection * se::doc::DocObjectsCollection::Create (
            const char * object_type)  [static]
```

Factory method, creates a new collection for objects with a given object type name.

Parameters

object_type	- the name of the graphical object type

Returns

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

CreateObject()

```
virtual DocBasicObject * se::doc::DocObjectsCollection::CreateObject () const  [pure virtual]
```

Factory method, creates a new graphical object of the type stored in this object collection instance.

Returns

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

Clone()

```
virtual DocObjectsCollection * se::doc::DocObjectsCollection::Clone () const  [pure virtual]
```

Clones the collection, returning a deep copy.

Returns

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

1.62 se::doc::DocObjectsCollectionsIterator Class Reference

Basic const-ref iterator for graphical object collections.

```
#include <doc_objects_collections_iterator.h>
```

Public Member Functions

- **DocObjectsCollectionsIterator** (const DocObjectsCollectionsIterator &other)
  Copy ctor.
- DocObjectsCollectionsIterator & **operator=** (const DocObjectsCollectionsIterator &other)
  Assignment operator.
- ~**DocObjectsCollectionsIterator** ()
  Non-trivial dtor.
- int **GetID** () const
  Returns the collection ID.
- const DocObjectsCollection & **GetObjectsCollection** () const
  Returns the collection (const ref)
- const DocTagsCollection & **GetTags** () const

Returns the tags collection associated with this collection.

- const DocObjectsCollection * **GetObjectsCollectionPtr** () const

  Returns the collection (const ptr)
- const DocTagsCollection * **GetTagsPtr** () const

  Returns the tags collection associated with this collection.
- void **Advance** ()

  Switches the iterator to point on the next collection.
- bool **Equals** (const DocObjectsCollectionsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same collection.
- bool **operator==** (const DocObjectsCollectionsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same collection.
- bool **operator!=** (const DocObjectsCollectionsIterator &rvalue) const

  Returns true iff this instance and rvalue point to a different collection.

Static Public Member Functions

- static DocObjectsCollectionsIterator **ConstructFromImpl** (const DocObjectsCollectionsIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocObjectsCollectionsIterator** (const DocObjectsCollectionsIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocObjectsCollectionsIteratorImpl * pimpl_

  Pointer to internal implementation.

1.62.1 Detailed Description

Basic const-ref iterator for graphical object collections.

Definition at line 26 of file doc_objects_collections_iterator.h.

1.62.2 Member Data Documentation

pimpl_

```
DocObjectsCollectionsIteratorImpl* se::doc::DocObjectsCollectionsIterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 67 of file doc_objects_collections_iterator.h.

1.63 se::doc::DocObjectsCollectionsMutableIterator Class Reference

Mutable-ref iterator for graphical object collections.

`#include <doc_objects_collections_iterator.h>`

Public Member Functions

- **DocObjectsCollectionsMutableIterator** (const DocObjectsCollectionsMutableIterator &other)

  Copy ctor.
- DocObjectsCollectionsMutableIterator & **operator=** (const DocObjectsCollectionsMutableIterator &other)

  Assignment operator.
- ~**DocObjectsCollectionsMutableIterator** ()

  Non-trivial dtor.
- int **GetID** () const

  Returns the collection ID.
- const DocObjectsCollection & **GetObjectsCollection** () const

  Returns the collection (const ptr)
- DocObjectsCollection & **GetMutableObjectsCollection** () const

  Returns the collection (mutable ptr)
- const DocTagsCollection & **GetTags** () const

  Returns the tags collection associated with this collection.
- const DocObjectsCollection * **GetObjectsCollectionPtr** () const

  Returns the collection (const ptr)
- DocObjectsCollection * **GetMutableObjectsCollectionPtr** () const

  Returns the collection (mutable ptr)
- const DocTagsCollection * **GetTagsPtr** () const

  Returns the tags collection associated with this collection.
- void **Advance** ()

  Switches the iterator to point on the next collection.
- bool **Equals** (const DocObjectsCollectionsMutableIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same collection.
- bool **operator==** (const DocObjectsCollectionsMutableIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same collection.
- bool **operator!=** (const DocObjectsCollectionsMutableIterator &rvalue) const

  Returns true iff this instance and rvalue point to a different collection.

Static Public Member Functions

- static DocObjectsCollectionsMutableIterator **ConstructFromImpl** (const DocObjectsCollectionsMutable↩IteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocObjectsCollectionsMutableIterator** (const DocObjectsCollectionsMutableIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocObjectsCollectionsMutableIteratorImpl * pimpl_

  Pointer to internal implementation.

1.63.1 Detailed Description

Mutable-ref iterator for graphical object collections.

Definition at line 78 of file doc_objects_collections_iterator.h.

1.63.2 Member Data Documentation

pimpl_

```
DocObjectsCollectionsMutableIteratorImpl* se::doc::DocObjectsCollectionsMutableIterator↩
::pimpl_ [private]
```

Pointer to internal implementation.

Definition at line 125 of file doc_objects_collections_iterator.h.

1.64 se::doc::DocObjectsCollectionsMutableSliceIterator Class Reference

Const-ref iterator for object collections with a given tag.

```
#include <doc_objects_collections_iterator.h>
```

Public Member Functions

- **DocObjectsCollectionsMutableSliceIterator** (const DocObjectsCollectionsMutableSliceIterator &other)

  Copy ctor.
- DocObjectsCollectionsMutableSliceIterator & **operator=** (const DocObjectsCollectionsMutableSliceIterator &other)

  Assignment operator.
- ~**DocObjectsCollectionsMutableSliceIterator** ()

  Non-trivial dtor.
- int **GetID** () const

  Returns the collection ID.
- const DocObjectsCollection & **GetObjectsCollection** () const

  Returns the collection by const-ref.
- DocObjectsCollection & **GetMutableObjectsCollection** () const

  Returns the collection by mutable-ref.
- const DocTagsCollection & **GetTags** () const

  Returns the tags collection associated with this collection.
- const DocObjectsCollection * **GetObjectsCollectionPtr** () const

  Returns the collection (const ptr)
- DocObjectsCollection * **GetMutableObjectsCollectionPtr** () const

  Returns the collection (mutable ptr)
- const DocTagsCollection * **GetTagsPtr** () const

  Returns the tags collection associated with this collection.
- void **Advance** ()

  Switches the iterator to point on the next collection.
- bool **Finished** () const

  Returns true iff the iterator points to the end of the subset of collections with a given tag.

Static Public Member Functions

- static DocObjectsCollectionsMutableSliceIterator **ConstructFromImpl** (const DocObjectsCollections↩ MutableSliceIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocObjectsCollectionsMutableSliceIterator** (const DocObjectsCollectionsMutableSliceIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocObjectsCollectionsMutableSliceIteratorImpl * pimpl_

  Pointer to internal implementation.

1.64.1 Detailed Description

Const-ref iterator for object collections with a given tag.

Definition at line 188 of file doc_objects_collections_iterator.h.

1.64.2 Member Data Documentation

pimpl_

```
DocObjectsCollectionsMutableSliceIteratorImpl* se::doc::DocObjectsCollectionsMutableSlice↩
Iterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 231 of file doc_objects_collections_iterator.h.

1.65 se::doc::DocObjectsCollectionsSliceIterator Class Reference

Const-ref iterator for graphical object collections with a given tag.

```
#include <doc_objects_collections_iterator.h>
```

Public Member Functions

- **DocObjectsCollectionsSliceIterator** (const DocObjectsCollectionsSliceIterator &other)

  Copy ctor.
- DocObjectsCollectionsSliceIterator & **operator=** (const DocObjectsCollectionsSliceIterator &other)

  Assignment operator.
- ~**DocObjectsCollectionsSliceIterator** ()

  Non-trivial dtor.
- int **GetID** () const

  Returns the collection ID.
- const DocObjectsCollection & **GetObjectsCollection** () const

  Returns the collection by const-ref.
- const DocTagsCollection & **GetTags** () const

  Returns the tags collection associated with this collection.
- const DocObjectsCollection * **GetObjectsCollectionPtr** () const

  Returns the collection (const ptr)
- const DocTagsCollection * **GetTagsPtr** () const

  Returns the tags collection associated with this collection.
- void **Advance** ()

  Switches the iterator to point on the next collection.
- bool **Finished** () const

  Returns true iff the iterator points to the end of the subset of collections with a given tag.

Static Public Member Functions

- static DocObjectsCollectionsSliceIterator **ConstructFromImpl** (const DocObjectsCollectionsSliceIterator↩ Impl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocObjectsCollectionsSliceIterator** (const DocObjectsCollectionsSliceIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocObjectsCollectionsSliceIteratorImpl * pimpl_

  Pointer to internal implementation.

1.65.1 Detailed Description

Const-ref iterator for graphical object collections with a given tag.

Definition at line 137 of file doc_objects_collections_iterator.h.

1.65.2 Member Data Documentation

pimpl_

```
DocObjectsCollectionsSliceIteratorImpl* se::doc::DocObjectsCollectionsSliceIterator::pimpl_↩
[private]
```

Pointer to internal implementation.

Definition at line 176 of file doc_objects_collections_iterator.h.

1.66 se::doc::DocPageFeedback Class Reference

Public Member Functions

- virtual ~**DocPageFeedback** ()=default

  Default dtor.
- virtual const se::common::Quadrangle & **GetQuadrangle** () const =0

  Returns page quadrangle in the original scene.
- virtual int **GetID** () const =0

  Return ID of the page.
- virtual const char * **GetType** () const =0

  Returns document type of teh page.
- virtual bool **IsPageRejected** () const =0

  Return 'true' if the page is not to be processed.

1.66.1 Detailed Description

Definition at line 57 of file doc_feedback.h.

1.67 se::doc::DocPagesFeedbackContainer Class Reference

The class representing a feedback container for pages. Not implemented in the current version of Smart Document Engine.

```
#include <doc_feedback.h>
```

Public Member Functions

- virtual ~**DocPagesFeedbackContainer** ()=default

  Default dtor.
- virtual int **GetPageCount** () const =0

  Returns the number of pages.
- virtual const DocPageFeedback & **GetPageFeedback** (const int idx) const =0

  Return feedback for the page with given indice.

1.67.1 Detailed Description

The class representing a feedback container for pages. Not implemented in the current version of Smart Document Engine.

Definition at line 79 of file doc_feedback.h.

1.68 se::doc::DocProcessingArguments Class Reference

The class representing the processing arguments for a custom document processor.

`#include <doc_external_processor.h>`

Public Member Functions

- virtual ~**DocProcessingArguments** ()=default

  Default dtor.
- virtual int **GetTagArgumentsCount** () const =0

  Returns the number of arguments.
- virtual const char * **GetTagArgument** (int index) const =0

  Returns the argument by index.
- virtual void **SetTagArgument** (int index, const char *argument)=0

  Sets the argument by index.
- virtual void **Resize** (int size)=0

  Resizes the array of arguments.

1.68.1 Detailed Description

The class representing the processing arguments for a custom document processor.

Definition at line 25 of file doc_external_processor.h.

1.69 se::doc::DocProcessingSettings Class Reference

The class representing the settings of a single processing iteration.

`#include <doc_processing_settings.h>`

Public Member Functions

- virtual ~**DocProcessingSettings** ()=default

  Default dtor.
- virtual int **GetCurrentSourceID** () const =0

  Returns the ID of a view which is marked as a current source.
- virtual void **SetCurrentSourceID** (int source_id)=0

  Sets the ID of a view which is marked as a current source.
- virtual int **GetOptionsCount** () const =0

  Returns the number of processing options.
- virtual bool **HasOption** (const char *option_name) const =0

  Returns true iff there exists a processing option with a given name.
- virtual const char * **GetOption** (const char *option_name) const =0

  Returns the processing option with a given name.
- virtual void **SetOption** (const char *option_name, const char *option_value)=0

  Sets the processing option as a key-value pair.
- virtual void **RemoveOption** (const char *option_name)=0

  Removes the processing option with a given name.
- virtual se::common::StringsMapIterator **OptionsBegin** () const =0

  Returns a 'begin' map-like iterator to the processing options.
- virtual se::common::StringsMapIterator **OptionsEnd** () const =0

  Returns an 'end' map-like iterator to the processing options.
- virtual int **GetAvailableRoutinesCount** () const =0

  Returns the number of available routines.
- virtual bool **HasAvailableRoutine** (const char *routine_name) const =0

  Returns true iff there exists an available routine with a given name.
- virtual se::common::StringsMapIterator **AvailableRoutinesBegin** () const =0

  Returns a 'begin' map-like iterator to the list of routine names.
- virtual se::common::StringsMapIterator **AvailableRoutinesEnd** () const =0

  Returns an 'end' map-like iterator to the list of routine names.
- virtual int **RoutinesQueueSize** () const =0

  Returns the size of the current routines queue.
- virtual const char * **RoutinesQueueFront** () const =0

  Returns the routine name at the front of the queue.
- virtual void **RoutinesQueuePush** (const char *routine_name)=0

  Pushes a routine to the back of the current routines queue.
- virtual void **RoutinesQueuePop** ()=0

  Pops a routine from the front of the current routines queue.
- virtual void **RoutinesQueueClear** ()=0

  Cleas the routines queue.
- virtual int **GetSessionOptionsCount** () const =0

  Returns the number of session options.
- virtual bool **HasSessionOption** (const char *option_name) const =0

  Returns true iff there exists a session option with a given name.
- virtual const char * **GetSessionOption** (const char *option_name) const =0

  Returns the session option with a given name.
- virtual se::common::StringsMapIterator **SessionOptionsBegin** () const =0

  Returns a 'begin' map-like iterator to the session options.
- virtual se::common::StringsMapIterator **SessionOptionsEnd** () const =0

  Returns an 'end' map-like iterator to the session options.
- virtual int **GetEnabledDocumentTypesCount** () const =0

Returns the number of enabled document types.

- virtual bool **HasEnabledDocumentType** (const char *doc_name) const =0

  Returns true iff there is an enabled document type with a given name.
- virtual const char * **GetEnabledDocumentType** (int doc_id) const =0

  Returns a name of enabled document type by index.
- virtual void **BindFeedbackReporter** (DocFeedback *feedback_reporter)=0

  Binds feedback reporter to processing settings.
- virtual DocFeedback * **GetFeedbackReporter** () const =0

  Returns pointer to feedback reporter.

1.69.1 Detailed Description

The class representing the settings of a single processing iteration.

Definition at line 23 of file doc_processing_settings.h.

1.70 se::doc::DocRawFieldFeedback Class Reference

Public Member Functions

- virtual ~**DocRawFieldFeedback** ()=default

  Default dtor.
- virtual const char * **GetName** () const =0

  Returns name of the raw field.
- virtual bool **HasQuadrangle** () const =0

  Returns true if field has quadrangle.
- virtual const se::common::Quadrangle & **GetQuadrangle** () const =0

  Returns raw field quadrangle in the source page.
- virtual const char * **GetType** () const =0

  Returns type of the raw field.
- virtual const se::common::OcrString **GetOcrString** () const =0

  Returns recognized value of the raw field.

1.70.1 Detailed Description

Definition at line 21 of file doc_feedback.h.

1.71 se::doc::DocRawFieldsFeedbackContainer Class Reference

Public Member Functions

- virtual ~**DocRawFieldsFeedbackContainer** ()=default

  Default dtor.
- virtual int **GetRawFieldCount** () const =0

  Returns the number of raw fields.
- virtual int **GetSourcePageID** () const =0

  Returns ID of the source page.
- virtual const DocRawFieldFeedback & **GetRawFieldFeedback** (const int idx) const =0

  Return feedback for the raw field with given indice.

1.71.1 Detailed Description

Definition at line 42 of file doc_feedback.h.

1.72 se::doc::DocResult Class Reference

The class representing the document analysis and recognition result.

`#include <doc_result.h>`

Public Member Functions

- virtual ~**DocResult** ()=default

  Default dtor.
- virtual DocResult * **PartialClone** () const =0

  Returns DoctResult copy without graphical structure.
- virtual const DocGraphicalStructure & **GetGraphicalStructure** () const =0

  Returns the graphical structure of the analyzed images (const ref)
- virtual DocGraphicalStructure & **GetMutableGraphicalStructure** ()=0

  Returns the graphical structure of the analyzed images (mutable ref)
- virtual const DocGraphicalStructure * **GetGraphicalStructurePtr** () const =0

  Returns the graphical structure of the analyzed images (const ptr)
- virtual DocGraphicalStructure * **GetMutableGraphicalStructurePtr** ()=0

  Returns the graphical structure of the analyzed images (mutable ptr)
- virtual int **GetDocumentsCount** () const =0

  Returns the number of found documents.
- virtual bool **HasDocument** (int doc_id) const =0

  Returns true iff there is a document with a given ID.
- virtual const Document & **GetDocument** (int doc_id) const =0

  Returns a document with a given ID (const ref)
- virtual Document & **GetMutableDocument** (int doc_id)=0

  Returns a document with a given ID (mutable ref)
- virtual const DocTagsCollection & **GetDocumentTags** (int doc_id) const =0

  Returns the tags collection of a document with a given ID.
- virtual const Document * **GetDocumentPtr** (int doc_id) const =0

  Returns a document with a given ID (const ptr)
- virtual Document * **GetMutableDocumentPtr** (int doc_id)=0

  Returns a document with a given ID (mutable ref)
- virtual const DocTagsCollection * **GetDocumentTagsPtr** (int doc_id) const =0

  Returns the tags collection of a document with a given ID.
- virtual DocumentsMutableIterator **AddDocument** (const Document &doc)=0

  Adds a new document to the result.
- virtual void **SetDocument** (int doc_id, const Document &doc)=0

  Sets a document with a given ID.
- virtual void **RemoveDocument** (int doc_id)=0

  Removes a document with a given ID.
- virtual DocumentsIterator **DocumentsBegin** () const =0

  Returns a constant 'begin' iterator to the collection of documents.
- virtual DocumentsIterator **DocumentsEnd** () const =0

Returns a constant 'end' iterator to the collection of documents.

- virtual DocumentsMutableIterator **MutableDocumentsBegin** ()=0

  Returns a mutable 'begin' iterator to the collection of documents.
- virtual DocumentsMutableIterator **MutableDocumentsEnd** ()=0

  Returns a mutable 'end' iterator to the collection of documents.
- virtual DocumentsSliceIterator **DocumentsSlice** (const char *tag) const =0

  Returns a constant iterator to the subset of documents with a given tag.
- virtual DocumentsMutableSliceIterator **MutableDocumentsSlice** (const char *tag)=0

  Returns a mutable iterator to the subset of documents with a given tag.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the result instance with a given serializer object.
- virtual bool **CanBuildPDFABuffer** () const =0

  Checks if pdf/a buffer can be created.
- virtual void **BuildPDFABuffer** ()=0

  Converts result to pdf/a buffer.
- virtual void **GetPDFABuffer** (unsigned char *output_buf, unsigned long long buf_size) const =0

  Returns the buffer with pdf/a result.
- virtual int **GetPDFABufferSize** () const =0

  Return the size of resulting buffer with pdf/a.
- virtual void **SetAddTextMode** (const char *mode_name)=0

  Sets the current mode of pdf/a serializing.
- virtual const char * **GetAddTextMode** () const =0

  Returns the current mode of pdf/a serializing.
- virtual bool **HasAddTextMode** (const char *mode_name) const =0

  Returns true if there is a supported mode of pdf/a serializing with a given name.
- virtual se::common::StringsVectorIterator **AddTextModesBegin** () const =0

  Returns a 'begin' vector-like iterator to the list of supported mode names.
- virtual se::common::StringsVectorIterator **AddTextModesEnd** () const =0

  Returns an 'end' vector-like iterator to the list of supported mode names.
- virtual void **SetTextTypeMode** (const char *mode_name)=0

  Sets the current mode of pdf/a serializing.
- virtual const char * **GetTextTypeMode** () const =0

  Returns the current mode of pdf/a serializing.
- virtual bool **HasTextTypeMode** (const char *mode_name) const =0

  Returns true if there is a supported mode of pdf/a serializing with a given name.
- virtual se::common::StringsVectorIterator **TextTypeModesBegin** () const =0

  Returns a 'begin' vector-like iterator to the list of supported mode names.
- virtual se::common::StringsVectorIterator **TextTypeModesEnd** () const =0

  Returns an 'end' vector-like iterator to the list of supported mode names.
- virtual void **SetColourMode** (const bool with_colour)=0

  Set to true if you want to save color elements of the images.
- virtual bool **GetColourMode** () const =0

  Return the current color saving mode.
- virtual int **GetDocSuitesCount** () const =0

  Return the number of gathered suites.
- virtual const DocSuite & **GetDocSuite** (int idx) const =0

  Returns a suite with a given idx (const ref)
- virtual const DocSuite * **GetDocSuitePtr** (int idx) const =0

  Returns a suite with a given idx (const ptr)
- virtual DocSuite & **GetMutableSuite** (int idx)=0

  Returns a suite with a given idx (mutable ref)

- virtual DocSuite * **GetMutableSuitePtr** (int idx)=0
  Returns a suite with a given idx (mutable ptr)
- virtual const DocPhysicalDocument & **GetPhysicalDocument** (int idx) const =0
  Returns a physical document with a given indice (const ref)
- virtual DocPhysicalDocument & **GetMutablePhysicalDocument** (int idx)=0
  Returns a physical document with a given indice (mutable ref)
- virtual const DocPhysicalDocument * **GetPhysicalDocumentPtr** (int idx) const =0
  Returns a physical document with a given indice (const ptr)
- virtual DocPhysicalDocument * **GetMutablePhysicalDocumentPtr** (int idx)=0
  Returns a physical document with a given indice (mutable ptr)

1.72.1 Detailed Description

The class representing the document analysis and recognition result.

Definition at line 25 of file doc_result.h.

1.73 se::doc::DocSession Class Reference

The class representing image processing session - main processing class of Smart Document Engine.

`#include <doc_session.h>`

Public Member Functions

- virtual ~**DocSession** ()=default
  Default dtor.
- virtual DocProcessingSettings * CreateProcessingSettings () const =0
  Creates a processing settings instance.
- virtual int RegisterImage (const se::common::Image &in_image)=0
  Registers a new image in the graphical structure.
- 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 void ProcessImage (const se::common::Image &in_image, const DocProcessingSettings &settings)=0
  Processes an image.
- virtual void **Process** (DocProcessingSettings &settings)=0
  Launches the document processing iteration with given settings.
- virtual void **Reset** ()=0
  Resets the internal state of the processing session.
- virtual const DocResult & **GetCurrentResult** () const =0
  Returns the current result (const ref)
- virtual DocResult & **GetMutableCurrentResult** ()=0
  Returns the current result (mutable ref)
- virtual const DocResult * **GetCurrentResultPtr** () const =0
  Returns the current result (const ptr)
- virtual DocResult * **GetMutableCurrentResultPtr** ()=0
  Returns the current result (mutable ptr)
- virtual const char * **GetType** () const =0
  Returns session type.

1.73.1 Detailed Description

The class representing image processing session - main processing class of Smart Document Engine.

Definition at line 24 of file doc_session.h.

1.73.2 Member Function Documentation

CreateProcessingSettings()

```
virtual DocProcessingSettings * se::doc::DocSession::CreateProcessingSettings () const  [pure
virtual]
```

Creates a processing settings instance.

Returns

A newly created processing settings instance. An object is allocated, the caller is responsible for deleting it.

RegisterImage()

```
virtual int se::doc::DocSession::RegisterImage (
            const se::common::Image & in_image)  [pure virtual]
```

Registers a new image in the graphical structure.

Parameters

in_image	- the input image to register

Returns

the ID of the view corresponding to the registered image

GetActivationRequest()

```
virtual const char * se::doc::DocSession::GetActivationRequest ()  [pure virtual]
```

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

Returns

A string with activation request

Activate()

```
virtual void se::doc::DocSession::Activate (
            const char * activation_response)  [pure virtual]
```

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

Parameters

activation_response	- the response from activation server

IsActivated()

```
virtual bool se::doc::DocSession::IsActivated () const  [pure virtual]
```

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

Returns

Boolen check (true/false)

ProcessImage()

```
virtual void se::doc::DocSession::ProcessImage (
            const se::common::Image & in_image,
            const DocProcessingSettings & settings)  [pure virtual]
```

Processes an image.

Parameters

in_image	- the input image to process
settings	- DocProcessingSettings instance

1.74 se::doc::DocSessionSettings Class Reference

The class representing the document processing session settings.

```
#include <doc_session_settings.h>
```

Public Member Functions

- virtual ~**DocSessionSettings** ()=default
  Default dtor.
- virtual DocSessionSettings * Clone () const =0
  Clones the session settings object.
- virtual int **GetOptionsCount** () const =0
  Returns the number of session options.
- virtual bool **HasOption** (const char *option_name) const =0
  Returns true iff there is a session option with a given name.
- virtual const char * **GetOption** (const char *option_name) const =0
  Returns the session option with a given name.
- virtual void **SetOption** (const char *option_name, const char *option_value)=0

Sets a session option as a key-value 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 a 'begin' map-like iterator to the collection of session options.

- virtual se::common::StringsMapIterator **OptionsEnd** () const =0

  Returns an 'end' map-like iterator to the collection of session options.

- virtual int **GetSupportedModesCount** () const =0

  Returns 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 const char * **GetSupportedMode** (int mode_id) const =0

  Returns the supported mode name with a given index.

- virtual se::common::StringsVectorIterator **SupportedModesBegin** () const =0

  Returns a 'begin' vector-like iterator to the list of supported mode names.

- virtual se::common::StringsVectorIterator **SupportedModesEnd** () const =0

  Returns an 'end' vector-like iterator to the list of supported mode names.

- virtual const char * **GetCurrentMode** () const =0

  Returns the current session mode.

- virtual void **SetCurrentMode** (const char *mode_name)=0

  Sets the current session mode.

- virtual int **GetInternalEnginesCount** () const =0

  Returns the number of available internal engines.

- virtual int **GetSupportedDocumentTypesCount** (int engine_id) const =0

  Returns the number of supported document types within an internal engin with a given index.

- virtual bool **HasSupportedDocumentType** (int engine_id, const char *doc_name) const =0

  Returns true iff there is a supported document type with a given name within an internal engine with a given index.

- virtual const char * **GetSupportedDocumentType** (int engine_id, int doc_id) const =0

  Returns the supported document type name with a given indices of the internal engine and document type.

- virtual int **GetEnabledDocumentTypesCount** () const =0

  Returns the number of enabled document types.

- virtual bool **HasEnabledDocumentType** (const char *doc_name) const =0

  Returns true iff there is an enabled document type with a given name.

- virtual const char * **GetEnabledDocumentType** (int doc_id) const =0

  Returns the enabled document type name with a given index.

- virtual const DocDocumentInfo & **GetDocumentInfo** (const char *doc_name) const =0

  Gets reference information about document type.

- virtual const DocDocumentInfo * **GetDocumentInfoPtr** (const char *doc_name) const =0

  Gets reference information about document type.

- 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 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.

- virtual void **AddEmptyDocSuiteSettings** (const char *suite_name)=0

  NOT IMPLEMENTED Add empty doc_suite_settings with given name for further creation.

- virtual DocSuiteSettings & **GetDocSuiteSettings** (const char *suite_name) const =0

  NOT IMPLEMENTED Returns doc_suite_settings for given suite's name (const ref)

- virtual DocSuiteSettings & **GetMultableDocSuiteSettings** (const char ∗suite_name)=0
  NOT IMPLEMENTED Returns doc_suite_settings for given suite's name (mutable ref)
- virtual DocSuiteSettings ∗ **GetDocSuiteSettingsPtr** (const char ∗suite_name) const =0
  NOT IMPLEMENTED Returns doc_suite_settings for given suite's name (const ptr)
- virtual DocSuiteSettings ∗ **GetMultableDocSuiteSettingsPtr** (const char ∗suite_name)=0
  NOT IMPLEMENTED Returns doc_suite_settings for given suite's name (mutable ptr)
- 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.

1.74.1 Detailed Description

The class representing the document processing session settings.

Definition at line 25 of file doc_session_settings.h.

1.74.2 Member Function Documentation

Clone()

```
virtual DocSessionSettings * se::doc::DocSessionSettings::Clone () const  [pure virtual]
```

Clones the session settings object.

Returns

A newly created object - deep copy of an instance. The object is allocated, the caller is responsible for deleting it.

AddEnabledDocumentTypes()

```
virtual void se::doc::DocSessionSettings::AddEnabledDocumentTypes (
            const char * doc_type_mask)  [pure virtual]
```

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

Parameters

doc_type_mask	- 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.

RemoveEnabledDocumentTypes()

```
virtual void se::doc::DocSessionSettings::RemoveEnabledDocumentTypes (
            const char * doc_type_mask)  [pure virtual]
```

Removes the document types from the set of enabled ones.

Parameters

doc_type_mask	- 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.

1.75 se::doc::DocTableField Class Reference

The class representing a table field of a document.

`#include <doc_fields.h>`

Public Member Functions

- virtual ∼**DocTableField** ()=default

  Default dtor.
- virtual const DocBaseFieldInfo & **GetBaseFieldInfo** () const =0

  Returns the basic field information (const ref)
- virtual DocBaseFieldInfo & **GetMutableBaseFieldInfo** ()=0

  Returns the basic field information (mutable ref)
- virtual const DocBaseFieldInfo ∗ **GetBaseFieldInfoPtr** () const =0

  Returns the basic field information (const ptr)
- virtual DocBaseFieldInfo ∗ **GetMutableBaseFieldInfoPtr** ()=0

  Returns the basic field information (mutable ptr)
- virtual int **GetRowsCount** () const =0

  Returns the number of rows in the table.
- virtual int **GetColsCount** () const =0

  Returns the number of columns in the table.
- virtual const DocTextField & **GetCell** (int row, int col) const =0

  Returns the cell of a table as a DocTextField (const ref)
- virtual DocTextField & **GetMutableCell** (int row, int col)=0

  Returns the cell of a table as a DocTextField (mutable ref)
- virtual const DocTextField ∗ **GetCellPtr** (int row, int col) const =0

  Returns the cell of a table as a DocTextField (const ptr)
- virtual DocTextField ∗ **GetMutableCellPtr** (int row, int col)=0

  Returns the cell of a table as a DocTextField (mutable ptr)
- virtual void **SetCell** (int row, int col, const DocTextField &text_field)=0

  Sets the cell of a table as a DocTextField.
- virtual void **ResizeRows** (int rows)=0

  Resizes the set of rows of the table.
- virtual void **ResizeRows** (int rows, const DocTextField &filler)=0

  Resizes the set of rows of the table with a given filler cell value.
- virtual void **ResizeCols** (int cols)=0

  Resizes the set of columns of the table.
- virtual void **ResizeCols** (int cols, const DocTextField &filler)=0

  Resizes the set of columns of the table with a given filler cell value.
- virtual const char ∗ **GetColName** (int col) const =0

  Returns the name of the column with a given index.
- virtual void **SetColName** (int col, const char ∗col_name)=0

  Sets the name of the column with a given index.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the field instance with a given serializer object.

1.75.1 Detailed Description

The class representing a table field of a document.

Definition at line 278 of file doc_fields.h.

1.76 se::doc::DocTableFieldsIterator Class Reference

Const-ref iterator for a collection of table fields.

`#include <doc_fields_iterators.h>`

Public Member Functions

- **DocTableFieldsIterator** (const DocTableFieldsIterator &other)
  Copy ctor.
- DocTableFieldsIterator & **operator=** (const DocTableFieldsIterator &other)
  Assignment operator.
- ~**DocTableFieldsIterator** ()
  Non-trivial dtor.
- const char * **GetKey** () const
  Returns the field name (the collection key)
- const DocTableField & **GetField** () const
  Returns the field value (const ref)
- const DocTableField * **GetFieldPtr** () const
  Returns the field value (const ptr)
- void **Advance** ()
  Switches the iterator to point on the next field in its collection.
- void **operator++** ()
  Switches the iterator to point on the next field in its collection.
- bool **Equals** (const DocTableFieldsIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same field.
- bool **operator==** (const DocTableFieldsIterator &rvalue) const
  Returns true iff this instance and rvalue point to the same field.
- bool **operator!=** (const DocTableFieldsIterator &rvalue) const
  Returns true iff this instance and rvalue point to the different fields.

Static Public Member Functions

- static DocTableFieldsIterator **ConstructFromImpl** (const DocTableFieldsIteratorImpl &pimpl)
  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocTableFieldsIterator** (const DocTableFieldsIteratorImpl &pimpl)
  Private ctor from internal implementation.

Private Attributes

- class DocTableFieldsIteratorImpl * pimpl_

  Pointer to internal implementation.

1.76.1 Detailed Description

Const-ref iterator for a collection of table fields.

Definition at line 265 of file doc_fields_iterators.h.

1.76.2 Member Data Documentation

pimpl_

```
class DocTableFieldsIteratorImpl* se::doc::DocTableFieldsIterator::pimpl_  [private]
```

Pointer to internal implementation.

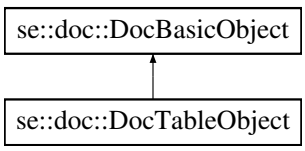
Definition at line 302 of file doc_fields_iterators.h.

1.77 se::doc::DocTableObject Class Reference

The graphical object representing a table.

```
#include <doc_objects.h>
```

Inheritance diagram for se::doc::DocTableObject:



Public Member Functions

- virtual ~**DocTableObject** () override=default

  Default dtor.
- virtual int **GetRowsCount** () const =0

  Returns the number of table rows.
- virtual int **GetColsCount** (int row) const =0

  Returns the number of table columns. Rows may contain different number of columns.
- virtual const DocMultiStringTextObject & **GetCell** (int row, int col) const =0

  Returns the cell by given row and column indices (const ref)
- virtual DocMultiStringTextObject & **GetMutableCell** (int row, int col)=0

  Returns the cell by given row and column indices (mutable ref)
- virtual const DocMultiStringTextObject * **GetCellPtr** (int row, int col) const =0

  Returns the cell by given row and column indices (const ptr)

- virtual DocMultiStringTextObject * **GetMutableCellPtr** (int row, int col)=0

  Returns the cell by given row and column indices (mutable ptr)
- virtual void **SetCell** (int row, int col, const DocMultiStringTextObject &multi_string_text_object)=0

  Sets the cell by given row and column indices.
- virtual void **ResizeRows** (int rows)=0

  Resizes the set of rows.
- virtual void **ResizeCols** (int row, int cols)=0

  Resizes the set of columns.
- virtual const char * **GetColName** (int col, int row) const =0

  Returns the name of the column.
- virtual void **SetColName** (int col, int first_row, const char *col_name)=0

  Sets the name of the column. Number of columns in first row limits the number of column names.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default

  Default dtor.
- virtual const char * **ObjectType** () const =0

  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0

  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0

  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0

  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0

  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()

  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.77.1 Detailed Description

The graphical object representing a table.

Definition at line 176 of file doc_objects.h.

1.78 se::doc::DocTagsCollection Class Reference

The class representing the collection of tags.

`#include <doc_tags_collection.h>`

Public Member Functions

- virtual ~**DocTagsCollection** ()=default

  Default dtor.
- virtual int **GetTagsCount** () const =0

  Returns the number of tags.
- virtual bool **HasTag** (const char *tag) const =0

  Returns true iff there is a tag with a given name in the collection.
- virtual void **AddTag** (const char *tag)=0

  Adds a tag with a given name to the collection.
- virtual void **RemoveTag** (const char *tag)=0

  Removes a tag with a given name from the collection.
- virtual se::common::StringsSetIterator **TagsBegin** () const =0

  Returns a 'begin' set-like iterator to the collection.
- virtual se::common::StringsSetIterator **TagsEnd** () const =0

  Returns an 'end' set-like iterator to the collection.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the tags collection instance with a given serializer object.

Static Public Member Functions

- static DocTagsCollection * Create ()

  Creates a new DocTagsCollection object.

1.78.1 Detailed Description

The class representing the collection of tags.

Definition at line 22 of file doc_tags_collection.h.

1.78.2 Member Function Documentation

Create()

```
static DocTagsCollection * se::doc::DocTagsCollection::Create ()  [static]
```

Creates a new DocTagsCollection object.

Returns

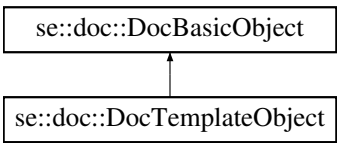
A newly created object with empty collection. The object is allocated, the caller is responsible for deleting it.

1.79 se::doc::DocTemplateObject Class Reference

The graphical object representing a fixed subform template.

`#include <doc_objects.h>`

Inheritance diagram for se::doc::DocTemplateObject:



Public Member Functions

- virtual ~**DocTemplateObject** () override=default

  Default dtor.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default

  Default dtor.
- virtual const char * **ObjectType** () const =0

  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0

  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0

  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0

  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0

  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()

  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.79.1 Detailed Description

The graphical object representing a fixed subform template.

Definition at line 72 of file doc_objects.h.

1.80 se::doc::DocTextField Class Reference

The class representing a text field of a document.

`#include <doc_fields.h>`

Public Member Functions

- virtual ~**DocTextField** ()=default
  Default dtor.
- virtual const DocBaseFieldInfo & **GetBaseFieldInfo** () const =0
  Returns the basic field information (const ref)
- virtual DocBaseFieldInfo & **GetMutableBaseFieldInfo** ()=0
  Returns the basic field information (mutable ref)
- virtual const DocBaseFieldInfo * **GetBaseFieldInfoPtr** () const =0
  Returns the basic field information (const ptr)
- virtual DocBaseFieldInfo * **GetMutableBaseFieldInfoPtr** ()=0
  Returns the basic field information (mutable ptr)
- virtual const se::common::OcrString & **GetOcrString** () const =0
  Returns the field recognition result (const ref)
- virtual se::common::OcrString & **GetMutableOcrString** ()=0
  Returns the field recognition result (mutable ref)
- virtual const se::common::OcrString * **GetOcrStringPtr** () const =0
  Returns the field recognition result (const ptr)
- virtual se::common::OcrString * **GetMutableOcrStringPtr** ()=0
  Returns the field recognition result (mutable ptr)
- virtual void **SetOcrString** (const se::common::OcrString &ocrstring)=0
  Sets the field recognition result.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0
  Serializes the field instance with a given serializer object.

1.80.1 Detailed Description

The class representing a text field of a document.

Definition at line 125 of file doc_fields.h.

1.81 se::doc::DocTextFieldsIterator Class Reference

Const-ref iterator for a collection of text fields.

`#include <doc_fields_iterators.h>`

Public Member Functions

- **DocTextFieldsIterator** (const DocTextFieldsIterator &other)

  Copy ctor.
- DocTextFieldsIterator & **operator=** (const DocTextFieldsIterator &other)

  Assignment operator.
- ~**DocTextFieldsIterator** ()

  Non-trivial dtor.
- const char * **GetKey** () const

  Returns the field name (the collection key)
- const DocTextField & **GetField** () const

  Returns the field value (const ref)
- const DocTextField * **GetFieldPtr** () const

  Returns the field value (const ptr)
- void **Advance** ()

  Switches the iterator to point on the next field in its collection.
- void **operator++** ()

  Switches the iterator to point on the next field in its collection.
- bool **Equals** (const DocTextFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same field.
- bool **operator==** (const DocTextFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same field.
- bool **operator!=** (const DocTextFieldsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the different fields.

Static Public Member Functions

- static DocTextFieldsIterator **ConstructFromImpl** (const DocTextFieldsIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocTextFieldsIterator** (const DocTextFieldsIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- class DocTextFieldsIteratorImpl * pimpl_

  Pointer to internal implementation.

1.81.1 Detailed Description

Const-ref iterator for a collection of text fields.

Definition at line 26 of file doc_fields_iterators.h.

1.81.2 Member Data Documentation

pimpl_

```
class DocTextFieldsIteratorImpl* se::doc::DocTextFieldsIterator::pimpl_  [private]
```

Pointer to internal implementation.

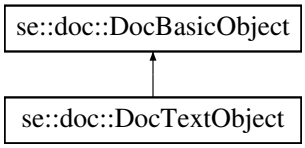
Definition at line 63 of file doc_fields_iterators.h.

1.82 se::doc::DocTextObject Class Reference

The graphical object representing a text line.

`#include <doc_objects.h>`

Inheritance diagram for se::doc::DocTextObject:



Public Member Functions

- virtual ~**DocTextObject** () override=default
  Default dtor.
- virtual const se::common::OcrString & **GetOcrString** () const =0
  Returns the text line recognitino result (const ref)
- virtual se::common::OcrString & **GetMutableOcrString** ()=0
  Returns the text line recognitino result (mutable ref)
- virtual const se::common::OcrString * **GetOcrStringPtr** () const =0
  Returns the text line recognitino result (const ptr)
- virtual se::common::OcrString * **GetMutableOcrStringPtr** ()=0
  Returns the text line recognitino result (mutable ptr)
- virtual void **SetOcrString** (const se::common::OcrString &ocrstring)=0
  Sets the text line recognitino result.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default
  Default dtor.
- virtual const char * **ObjectType** () const =0
  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0
  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0
  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0
  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0
  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0
  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()

  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.82.1 Detailed Description

The graphical object representing a text line.

Definition at line 24 of file doc_objects.h.

1.83 se::doc::Document Class Reference

Class representing a recognized Document.

`#include <doc_document.h>`

Public Member Functions

- virtual ~**Document** ()=default

  Default dtor.
- virtual int **GetTextFieldsCount** () const =0

  Returns the number of text fields in a document.
- virtual bool **HasTextField** (const char *name) const =0

  Checks if a text field exists by name.
- virtual const DocTextField & **GetTextField** (const char *name) const =0

  Text field getter by name.
- virtual DocTextField & **GetMutableTextField** (const char *name)=0

  Mutable text field getter by name.
- virtual const DocTextField * **GetTextFieldPtr** (const char *name) const =0

  Text field getter by name.
- virtual DocTextField * **GetMutableTextFieldPtr** (const char *name)=0

  Mutable text field getter by name.
- virtual void **SetTextField** (const char *name, const DocTextField &field)=0

  Text field setter.
- virtual void **RemoveTextField** (const char *name)=0

  Removes a text field with a given name.
- virtual DocTextFieldsIterator **TextFieldsBegin** () const =0

  Returns a begin-iterator for an internal collection of text fields.
- virtual DocTextFieldsIterator **TextFieldsEnd** () const =0

  Returns an end-iterator for an internal collection of text fields.
- virtual int **GetImageFieldsCount** () const =0

  Returns the number of image fields in a document.

- virtual bool **HasImageField** (const char *name) const =0

  Checks if an image field exists by name.
- virtual const DocImageField & **GetImageField** (const char *name) const =0

  Image field getter by name.
- virtual DocImageField & **GetMutableImageField** (const char *name)=0

  Mutable image field getter by name.
- virtual const DocImageField * **GetImageFieldPtr** (const char *name) const =0

  Image field getter by name.
- virtual DocImageField * **GetMutableImageFieldPtr** (const char *name)=0

  Mutable image field getter by name.
- virtual void **SetImageField** (const char *name, const DocImageField &field)=0

  Image field setter.
- virtual void **RemoveImageField** (const char *name)=0

  Removes an image field with a given name.
- virtual DocImageFieldsIterator **ImageFieldsBegin** () const =0

  Returns a begin-iterator for an internal collection of image fields.
- virtual DocImageFieldsIterator **ImageFieldsEnd** () const =0

  Returns an end-iterator for an internal collection of image fields.
- virtual int **GetCheckboxFieldsCount** () const =0

  Returns the number of checkbox fields in a document.
- virtual bool **HasCheckboxField** (const char *name) const =0

  Checks if a checkbox field exists by name.
- virtual const DocCheckboxField & **GetCheckboxField** (const char *name) const =0

  Checkbox field getter by name.
- virtual DocCheckboxField & **GetMutableCheckboxField** (const char *name)=0

  Mutable checkbox field getter by name.
- virtual const DocCheckboxField * **GetCheckboxFieldPtr** (const char *name) const =0

  Checkbox field getter by name.
- virtual DocCheckboxField * **GetMutableCheckboxFieldPtr** (const char *name)=0

  Mutable checkbox field getter by name.
- virtual void **SetCheckboxField** (const char *name, const DocCheckboxField &field)=0

  Checkbox field setter.
- virtual void **RemoveCheckboxField** (const char *name)=0

  Removes a checkbox field with a given name.
- virtual DocCheckboxFieldsIterator **CheckboxFieldsBegin** () const =0

  Returns a begin-iterator for an internal collection of checkbox fields.
- virtual DocCheckboxFieldsIterator **CheckboxFieldsEnd** () const =0

  Returns an end-iterator for an internal collection of checkbox fields.
- virtual int **GetForensicFieldsCount** () const =0

  Returns the number of forensic fields in a document.
- virtual bool **HasForensicField** (const char *name) const =0

  Checks if a forensic field exists by name.
- virtual const DocForensicField & **GetForensicField** (const char *name) const =0

  Forensic field getter by name.
- virtual DocForensicField & **GetMutableForensicField** (const char *name)=0

  Mutable forensic field getter by name.
- virtual const DocForensicField * **GetForensicFieldPtr** (const char *name) const =0

  Forensic field getter by name.
- virtual DocForensicField * **GetMutableForensicFieldPtr** (const char *name)=0

  Mutable forensic field getter by name.
- virtual void **SetForensicField** (const char *name, const DocForensicField &field)=0

Forensic field setter.

- virtual void **RemoveForensicField** (const char ∗name)=0

  Removes a forensic field with a given name.
- virtual DocForensicFieldsIterator **ForensicFieldsBegin** () const =0

  Returns a begin-iterator for an internal collection of forensic fields.
- virtual DocForensicFieldsIterator **ForensicFieldsEnd** () const =0

  Returns an end-iterator for an internal collection of forensic fields.
- virtual int **GetForensicCheckFieldsCount** () const =0

  Returns the number of forensic check fields in a document.
- virtual bool **HasForensicCheckField** (const char ∗name) const =0

  Checks if a forensic check field exists by name.
- virtual const DocForensicCheckField & **GetForensicCheckField** (const char ∗name) const =0

  Forensic check field getter by name.
- virtual DocForensicCheckField & **GetMutableForensicCheckField** (const char ∗name)=0

  Mutable forensic check field getter by name.
- virtual const DocForensicCheckField ∗ **GetForensicCheckFieldPtr** (const char ∗name) const =0

  Forensic check field getter by name.
- virtual DocForensicCheckField ∗ **GetMutableForensicCheckFieldPtr** (const char ∗name)=0

  Mutable forensic check field getter by name.
- virtual void **SetForensicCheckField** (const char ∗name, const DocForensicCheckField &field)=0

  Forensic check field setter.
- virtual void **RemoveForensicCheckField** (const char ∗name)=0

  Removes a forensic check field with a given name.
- virtual DocForensicCheckFieldsIterator **ForensicCheckFieldsBegin** () const =0

  Returns a begin-iterator for an internal collection of forensic check fields.
- virtual DocForensicCheckFieldsIterator **ForensicCheckFieldsEnd** () const =0

  Returns an end-iterator for an internal collection of forensic check fields.
- virtual int **GetTableFieldsCount** () const =0

  Returns the number of table fields in a document.
- virtual bool **HasTableField** (const char ∗name) const =0

  Checks if a table field exists by name.
- virtual const DocTableField & **GetTableField** (const char ∗name) const =0

  Table field getter by name.
- virtual DocTableField & **GetMutableTableField** (const char ∗name)=0

  Mutable table field getter by name.
- virtual const DocTableField ∗ **GetTableFieldPtr** (const char ∗name) const =0

  Table field getter by name.
- virtual DocTableField ∗ **GetMutableTableFieldPtr** (const char ∗name)=0

  Mutable table field getter by name.
- virtual void **SetTableField** (const char ∗name, const DocTableField &field)=0

  Table field setter.
- virtual void **RemoveTableField** (const char ∗name)=0

  Removes a table field with a given name.
- virtual DocTableFieldsIterator **TableFieldsBegin** () const =0

  Returns a begin-iterator for an internal collection of table fields.
- virtual DocTableFieldsIterator **TableFieldsEnd** () const =0

  Returns an end-iterator for an internal collection of table fields.
- virtual int **GetBarcodeFieldsCount** () const =0

  Returns the number of barcode fields in a document.
- virtual bool **HasBarcodeField** (const char ∗name) const =0

  Checks if a barcode field exists by name.

- virtual const DocBarcodeField & **GetBarcodeField** (const char ∗name) const =0

  Barcode field getter by name.
- virtual DocBarcodeField & **GetMutableBarcodeField** (const char ∗name)=0

  Mutable barcode field getter by name.
- virtual const DocBarcodeField ∗ **GetBarcodeFieldPtr** (const char ∗name) const =0

  Barcode field getter by name.
- virtual DocBarcodeField ∗ **GetMutableBarcodeFieldPtr** (const char ∗name)=0

  Mutable barcode field getter by name.
- virtual void **SetBarcodeField** (const char ∗name, const DocBarcodeField &field)=0

  Barcode field setter.
- virtual void **RemoveBarcodeField** (const char ∗name)=0

  Removes a barcode field with a given name.
- virtual DocBarcodeFieldsIterator **BarcodeFieldsBegin** () const =0

  Returns a begin-iterator for an internal collection of barcode fields.
- virtual DocBarcodeFieldsIterator **BarcodeFieldsEnd** () const =0

  Returns an end-iterator for an internal collection of barcode fields.
- virtual int **GetAttributesCount** () const =0

  Returns the number of document attributes.
- virtual bool **HasAttribute** (const char ∗attr_name) const =0

  Checks if an attributes exists with a given name.
- virtual const char ∗ **GetAttribute** (const char ∗attr_name) const =0

  Returns an attribute value for a given name.
- virtual void **SetAttribute** (const char ∗attr_name, const char ∗attr_value)=0

  Sets an attribute key-value pair.
- virtual void **RemoveAttribute** (const char ∗attr_name)=0

  Removes an attribute with a given name.
- virtual se::common::StringsMapIterator **AttributesBegin** () const =0

  Returns a begin-iterator for an internal collection of attributes.
- virtual se::common::StringsMapIterator **AttributesEnd** () const =0

  Returns an end-iterator for an internal collection of attributes.
- virtual const char ∗ **GetType** () const =0

  Returns document's type.
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the document instance with a given serializer object.
- virtual int **GetPhysicalDocIdx** () const =0

  Return indice of teh connected physical document.

Static Public Member Functions

- static const char ∗ **BaseClassNameStatic** ()

  Service method, returns "Document".

1.83.1 Detailed Description

Class representing a recognized Document.

Definition at line 22 of file doc_document.h.

1.84 se::doc::DocumentsIterator Class Reference

A constant iterator for a collection of Document instances.

`#include <doc_documents_iterator.h>`

Public Member Functions

- **DocumentsIterator** (const DocumentsIterator &other)
  Copy ctor.
- DocumentsIterator & **operator=** (const DocumentsIterator &other)
  Assignment operator.
- ~**DocumentsIterator** ()
  Dtor (non-trivial)
- int **GetID** () const
  Returns a document ID.
- const Document & **GetDocument** () const
  Constant getter for the document instance.
- const DocTagsCollection & **GetTags** () const
  Returns a collection of tags associated with a document in the collection.
- const Document * **GetDocumentPtr** () const
  Constant getter for the document instance.
- const DocTagsCollection * **GetTagsPtr** () const
  Returns a collection of tags associated with a document in the collection.
- void **Advance** ()
  Moves the iterator to the next object in a collection.
- void **operator++** ()
  Operator which moves the iterator to the next object in a collection.
- bool **Equals** (const DocumentsIterator &rvalue) const
  Checks whether the iterator points to the same object as rvalue.
- bool **operator==** (const DocumentsIterator &rvalue) const
  Operator which checks whether the iterator points to the same object.
- bool **operator!=** (const DocumentsIterator &rvalue) const
  Operator which checks whether the iterator points to a different object.

Static Public Member Functions

- static DocumentsIterator **ConstructFromImpl** (const DocumentsIteratorImpl &pimpl)
  A public handle for the internal ctor.

Private Member Functions

- **DocumentsIterator** (const DocumentsIteratorImpl &pimpl)
  Private ctor from internal implementation.

Private Attributes

- DocumentsIteratorImpl * pimpl_
  Internal representation of the iterator.

1.84.1 Detailed Description

A constant iterator for a collection of Document instances.

Definition at line 26 of file doc_documents_iterator.h.

1.84.2 Member Data Documentation

pimpl_

```
DocumentsIteratorImpl* se::doc::DocumentsIterator::pimpl_  [private]
```

Internal representation of the iterator.

Definition at line 66 of file doc_documents_iterator.h.

1.85 se::doc::DocumentsMutableIterator Class Reference

A mutable iterator for a collection of Document instances.

```
#include <doc_documents_iterator.h>
```

Public Member Functions

- **DocumentsMutableIterator** (const DocumentsMutableIterator &other)
  Copy ctor.
- DocumentsMutableIterator & **operator=** (const DocumentsMutableIterator &other)
  Assignment operator.
- ~**DocumentsMutableIterator** ()
  Dtor (non-trivial)
- int **GetID** () const
  Returns a document ID.
- const Document & **GetDocument** () const
  Constant getter for the document instance.
- Document & **GetMutableDocument** () const
  Mutable getter for the document instance.
- const DocTagsCollection & **GetTags** () const
  Returns a collection of tags associated with a document in the collection.
- const Document * **GetDocumentPtr** () const
  Constant getter for the document instance.
- Document * **GetMutableDocumentPtr** () const
  Mutable getter for the document instance.
- const DocTagsCollection * **GetTagsPtr** () const
  Returns a collection of tags associated with a document in the collection.
- void **Advance** ()
  Moves the iterator to the next object in a collection.
- void **operator++** ()
  Operator which moves the iterator to the next object in a collection.
- bool **Equals** (const DocumentsMutableIterator &rvalue) const
  Checks whether the iterator points to the same object as rvalue.
- bool **operator==** (const DocumentsMutableIterator &rvalue) const
  Operator which checks whether the iterator points to the same object.
- bool **operator!=** (const DocumentsMutableIterator &rvalue) const
  Operator which checks whether the iterator points to a different object.

Static Public Member Functions

- static DocumentsMutableIterator **ConstructFromImpl** (const DocumentsMutableIteratorImpl &pimpl)

  A public handle for the main ctor.

Private Member Functions

- **DocumentsMutableIterator** (const DocumentsMutableIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocumentsMutableIteratorImpl * pimpl_

  Internal representation of the iterator.

1.85.1 Detailed Description

A mutable iterator for a collection of Document instances.

Definition at line 76 of file doc_documents_iterator.h.

1.85.2 Member Data Documentation

pimpl_

```
DocumentsMutableIteratorImpl* se::doc::DocumentsMutableIterator::pimpl_  [private]
```

Internal representation of the iterator.

Definition at line 121 of file doc_documents_iterator.h.

1.86 se::doc::DocumentsMutableSliceIterator Class Reference

A mutable iterator for a subset of the collection of Document instances.

```
#include <doc_documents_iterator.h>
```

Public Member Functions

- **DocumentsMutableSliceIterator** (const DocumentsMutableSliceIterator &other)

  Copy ctor.
- DocumentsMutableSliceIterator & **operator=** (const DocumentsMutableSliceIterator &other)

  Assignment operator.
- ~**DocumentsMutableSliceIterator** ()

  Dtor (non-trivial)
- int **GetID** () const

  Returns a document ID.
- const Document & **GetDocument** () const

  Constant getter for the document instance.
- Document & **GetMutableDocument** () const

  Mutable getter for the document instance.
- const DocTagsCollection & **GetTags** () const

  Returns a collection of tags associated with a document in the collection.
- const Document * **GetDocumentPtr** () const

  Constant getter for the document instance.
- Document * **GetMutableDocumentPtr** () const

  Mutable getter for the document instance.
- const DocTagsCollection * **GetTagsPtr** () const

  Returns a collection of tags associated with a document in the collection.
- void **Advance** ()

  Moves the iterator to the next object in a collection.
- void **operator++** ()

  Operator which moves the iterator to the next object in a collection.
- bool **Finished** () const

  Returns true when the iterator reached the end of the subset.

Static Public Member Functions

- static DocumentsMutableSliceIterator **ConstructFromImpl** (const DocumentsMutableSliceIteratorImpl &pimpl)

  A public handle for the main ctor.

Private Member Functions

- **DocumentsMutableSliceIterator** (const DocumentsMutableSliceIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocumentsMutableSliceIteratorImpl * pimpl_

  Internal representation of the iterator.

1.86.1 Detailed Description

A mutable iterator for a subset of the collection of Document instances.

Definition at line 181 of file doc_documents_iterator.h.

1.86.2 Member Data Documentation

pimpl_

```
DocumentsMutableSliceIteratorImpl* se::doc::DocumentsMutableSliceIterator::pimpl_  [private]
```

Internal representation of the iterator.

Definition at line 223 of file doc_documents_iterator.h.

1.87 se::doc::DocumentsSliceIterator Class Reference

A const iterator for a subset of the collection of Document instances.

```
#include <doc_documents_iterator.h>
```

Public Member Functions

- **DocumentsSliceIterator** (const DocumentsSliceIterator &other)
  Copy ctor.
- DocumentsSliceIterator & **operator=** (const DocumentsSliceIterator &other)
  Assignment operator.
- ~**DocumentsSliceIterator** ()
  Dtor (non-trivial)
- int **GetID** () const
  Returns a document ID.
- const Document & **GetDocument** () const
  Constant getter for the document instance.
- const DocTagsCollection & **GetTags** () const
  Returns a collection of tags associated with a document in the collection.
- const Document * **GetDocumentPtr** () const
  Constant getter for the document instance.
- const DocTagsCollection * **GetTagsPtr** () const
  Returns a collection of tags associated with a document in the collection.
- void **Advance** ()
  Moves the iterator to the next object in a collection.
- void **operator++** ()
  Operator which moves the iterator to the next object in a collection.
- bool **Finished** () const
  Returns true when the iterator reached the end of the subset.

Static Public Member Functions

- static DocumentsSliceIterator **ConstructFromImpl** (const DocumentsSliceIteratorImpl &pimpl)
  A public handle for the main ctor.

Private Member Functions

- **DocumentsSliceIterator** (const DocumentsSliceIteratorImpl &pimpl)
  Private ctor from internal implementation.

Private Attributes

- DocumentsSliceIteratorImpl * pimpl_
  Internal representation of the iterator.

1.87.1 Detailed Description

A const iterator for a subset of the collection of Document instances.

Definition at line 132 of file doc_documents_iterator.h.

1.87.2 Member Data Documentation

pimpl_

```
DocumentsSliceIteratorImpl* se::doc::DocumentsSliceIterator::pimpl_  [private]
```

Internal representation of the iterator.

Definition at line 169 of file doc_documents_iterator.h.

1.88 se::doc::DocVideoSession Class Reference

The class representing video processing session.

```
#include <doc_video_session.h>
```

Public Member Functions

- virtual ~**DocVideoSession** ()=default
  Default dtor.
- virtual DocProcessingSettings * CreateProcessingSettings () const =0
  Creates a processing settings instance.
- 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 void ProcessImage (const se::common::Image &in_image, const DocProcessingSettings &settings)=0
  Launches processing of a video frame with given processing settings.
- virtual void **Reset** ()=0
  Resets the internal state of the session.
- virtual const DocResult & **GetCurrentResult** () const =0
  Returns the current result (const ref)
- virtual DocResult & **GetMutableCurrentResult** ()=0
  Returns the current result (mutable ref)
- virtual const DocResult * **GetCurrentResultPtr** () const =0
  Returns the current result (const ptr)
- virtual DocResult * **GetMutableCurrentResultPtr** ()=0
  Returns the current result (mutable ptr)

1.88.1 Detailed Description

The class representing video processing session.

Definition at line 23 of file doc_video_session.h.

1.88.2 Member Function Documentation

CreateProcessingSettings()

```
virtual DocProcessingSettings * se::doc::DocVideoSession::CreateProcessingSettings () const
[pure virtual]
```

Creates a processing settings instance.

Returns

A newly created processing settings instance. An object is allocated, the caller is responsible for deleting it.

GetActivationRequest()

```
virtual const char * se::doc::DocVideoSession::GetActivationRequest ()  [pure virtual]
```

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

Returns

A string with activation request

Activate()

```
virtual void se::doc::DocVideoSession::Activate (
            const char * activation_response)  [pure virtual]
```

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

Parameters

activation_response	- the response from activation server

IsActivated()

```
virtual bool se::doc::DocVideoSession::IsActivated () const  [pure virtual]
```

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

Returns

Boolen check (true/false)

ProcessImage()

```
virtual void se::doc::DocVideoSession::ProcessImage (
            const se::common::Image & in_image,
            const DocProcessingSettings & settings)  [pure virtual]
```

Launches processing of a video frame with given processing settings.

Parameters

in_image	- input image for processing
settings	- processing settings instance

1.89 se::doc::DocView Class Reference

The class representing an image view stored in the graphical structure.

`#include <doc_view.h>`

Public Member Functions

- virtual ~**DocView** ()=default

  Default dtor.
- virtual const se::common::Image & **GetImage** () const =0

  Returns the associated image (const ref)
- virtual se::common::Image & **GetMutableImage** ()=0

  Returns the associated image (mutable ref)
- virtual const se::common::Image * **GetImagePtr** () const =0

  Returns the associated image (const ptr)
- virtual se::common::Image * **GetMutableImagePtr** ()=0

  Returns the associated image (mutable ptr)
- virtual void **SetImage** (const se::common::Image &image)=0

  Sets the associated image.
- virtual int **GetAncestorID** () const =0

  Returns the immediate ancestor view ID in the views tree.
- virtual void **SetAncestorID** (int anc_id)=0

  Sets the immediate ancestor view ID in the views tree.
- virtual int **GetRootAncestorID** () const =0

  Returns the highest ancestor view ID in the views tree.
- virtual void **SetRootAncestorID** (int root_anc_id)=0

  Sets the highest ancestor view ID in the views tree.
- virtual const se::common::ProjectiveTransform & **GetTransform** () const =0

  Returns the projective transform from immediate ancestor to the current view (const ref)
- virtual se::common::ProjectiveTransform & **GetMutableTransform** ()=0

  Returns the projective transform from immediate ancestor to the current view (mutable ref)
- virtual void **SetTransform** (const se::common::ProjectiveTransform &transform)=0

  Sets the projective transform from immediate ancestor to the current view.
- virtual const se::common::ProjectiveTransform * **GetTransformPtr** () const =0

  Returns the projective transform from immediate ancestor to the current view (const ptr)
- virtual se::common::ProjectiveTransform * **GetMutableTransformPtr** ()=0

  Returns the projective transform from immediate ancestor to the current view (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the view instance with a given serializer object.

Static Public Member Functions

- static const char * **BaseClassNameStatic** ()

  Service method, returns object class name.

1.89.1 Detailed Description

The class representing an image view stored in the graphical structure.

Definition at line 23 of file doc_view.h.

1.90 se::doc::DocViewsCollection Class Reference

The class representing the collection of views.

`#include <doc_views_collection.h>`

Public Member Functions

- virtual ~**DocViewsCollection** ()=default

  Default dtor.
- virtual int **GetViewsCount** () const =0

  Returns the number of views.
- virtual bool **HasView** (int view_id) const =0

  Returns true iff there is a view with a given ID.
- virtual const DocView & **GetView** (int view_id) const =0

  Returns the view with a given ID (const ref)
- virtual DocView & **GetMutableView** (int view_id)=0

  Returns the view with a given ID (mutable ref)
- virtual const DocTagsCollection & **GetViewTags** (int view_id) const =0

  Returns the tags collection of the view with a given ID.
- virtual const DocView * **GetViewPtr** (int view_id) const =0

  Returns the view with a given ID (const ptr)
- virtual DocView * **GetMutableViewPtr** (int view_id)=0

  Returns the view with a given ID (mutable ptr)
- virtual const DocTagsCollection * **GetViewTagsPtr** (int view_id) const =0

  Returns the tags collection of the view with a given ID.
- virtual DocViewsMutableIterator RegisterView (const se::common::Image &image)=0

  Registers a new top-level view.
- virtual DocViewsMutableIterator RegisterDerivedView (const se::common::Image &image, int ancestor_id, const se::common::ProjectiveTransform &transform)=0

  Registers a new derived view.
- virtual void **DeleteOrphans** ()=0

  Removes all views whose immediate ancestors do not exist.
- virtual void **DeleteView** (int view_id)=0

  Removes the view with a given ID.
- virtual DocViewsIterator **ViewsBegin** () const =0

  Returns a constant 'begin' iterator to the views collection.
- virtual DocViewsIterator **ViewsEnd** () const =0

Returns a constant 'end' iterator to the views collection.

- virtual DocViewsMutableIterator **MutableViewsBegin** ()=0

  Returns a mutable 'begin' iterator to the views collection.

- virtual DocViewsMutableIterator **MutableViewsEnd** ()=0

  Returns a mutable 'end' iterator to the views collection.

- virtual DocViewsSliceIterator **ViewsSlice** (const char *tag) const =0

  Returns a constant iterator to the subset of views with a given tag.

- virtual DocViewsMutableSliceIterator **MutableViewsSlice** (const char *tag)=0

  Returns a mutable iterator to the subset of views with a given tag.

- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the instance with a given serializer object.

Static Public Member Functions

- static const char * **BaseClassNameStatic** ()

  Service method, returns object class name.

1.90.1 Detailed Description

The class representing the collection of views.

Definition at line 24 of file doc_views_collection.h.

1.90.2 Member Function Documentation

RegisterView()

```
virtual DocViewsMutableIterator se::doc::DocViewsCollection::RegisterView (
            const se::common::Image & image)  [pure virtual]
```

Registers a new top-level view.

Parameters

image	- the image to associate with a new view

Returns

A mutable views iterator pointing to the newly created view

RegisterDerivedView()

```
virtual DocViewsMutableIterator se::doc::DocViewsCollection::RegisterDerivedView (
            const se::common::Image & image,
            int ancestor_id,
            const se::common::ProjectiveTransform & transform)  [pure virtual]
```

Registers a new derived view.

Parameters

image	- the image to associate with a new view
ancestor↩ _id	- the ID of an immediate ancestor
transform	- the projective tranform from immediate ancestor to the new view

Returns

A mutable views iterator pointing to the newly created view

1.91 se::doc::DocViewsIterator Class Reference

Basic const-ref iterator for a collection of views.

`#include <doc_views_iterator.h>`

Public Member Functions

- **DocViewsIterator** (const DocViewsIterator &other)

  Copy ctor.
- DocViewsIterator & **operator=** (const DocViewsIterator &other)

  Assignment operator.
- ∼**DocViewsIterator** ()

  Non-trivial dtor.
- int **GetID** () const

  Returns the view ID.
- const DocView & **GetView** () const

  Returns the view (const ref)
- const DocTagsCollection & **GetTags** () const

  Returns the collection of tags associated with this view.
- const DocView ∗ **GetViewPtr** () const

  Returns the view (const ptr)
- const DocTagsCollection ∗ **GetTagsPtr** () const

  Returns the collection of tags associated with this view.
- void **Advance** ()

  Switches the iterator to point on the next view.
- bool **Equals** (const DocViewsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same view.
- bool **operator==** (const DocViewsIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same view.
- bool **operator!=** (const DocViewsIterator &rvalue) const

  Returns true iff this instance and rvalue point to different views.

Static Public Member Functions

- static DocViewsIterator **ConstructFromImpl** (const DocViewsIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocViewsIterator** (const DocViewsIteratorImpl &pimpl)
  Private ctor from internal implementation.

Private Attributes

- DocViewsIteratorImpl * pimpl_
  Pointer to internal implementation.

1.91.1 Detailed Description

Basic const-ref iterator for a collection of views.

Definition at line 27 of file doc_views_iterator.h.

1.91.2 Member Data Documentation

pimpl_

```
DocViewsIteratorImpl* se::doc::DocViewsIterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 65 of file doc_views_iterator.h.

1.92 se::doc::DocViewsMutableIterator Class Reference

Mutable-ref iterator for a collection of views.

```
#include <doc_views_iterator.h>
```

Public Member Functions

- **DocViewsMutableIterator** (const DocViewsMutableIterator &other)
  Copy ctor.
- DocViewsMutableIterator & **operator=** (const DocViewsMutableIterator &other)
  Assignment operator.
- ~**DocViewsMutableIterator** ()
  Non-trivial dtor.
- int **GetID** () const
  Returns the view ID.
- const DocView & **GetView** () const
  Returns the view (const ref)
- DocView & **GetMutableView** () const
  Returns the view (mutable ref)
- const DocTagsCollection & **GetTags** () const
  Returns the collection of tags associated with this view.

- const DocView * **GetViewPtr** () const

  Returns the view (const ptr)
- DocView * **GetMutableViewPtr** () const

  Returns the view (mutable ptr)
- const DocTagsCollection * **GetTagsPtr** () const

  Returns the collection of tags associated with this view.
- void **Advance** ()

  Switches the iterator to point on the next view.
- bool **Equals** (const DocViewsMutableIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same view.
- bool **operator==** (const DocViewsMutableIterator &rvalue) const

  Returns true iff this instance and rvalue point to the same view.
- bool **operator!=** (const DocViewsMutableIterator &rvalue) const

  Returns true iff this instance and rvalue point to different views.

Static Public Member Functions

- static DocViewsMutableIterator **ConstructFromImpl** (const DocViewsMutableIteratorImpl &pimpl)

  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocViewsMutableIterator** (const DocViewsMutableIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocViewsMutableIteratorImpl * pimpl_

  Pointer to internal implementation.

1.92.1 Detailed Description

Mutable-ref iterator for a collection of views.

Definition at line 76 of file doc_views_iterator.h.

1.92.2 Member Data Documentation

pimpl_

```
DocViewsMutableIteratorImpl* se::doc::DocViewsMutableIterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 119 of file doc_views_iterator.h.

1.93 se::doc::DocViewsMutableSliceIterator Class Reference

Mutable-ref iterator for views with a given tag.

`#include <doc_views_iterator.h>`

Public Member Functions

- **DocViewsMutableSliceIterator** (const DocViewsMutableSliceIterator &other)
  Copy ctor.
- DocViewsMutableSliceIterator & **operator=** (const DocViewsMutableSliceIterator &other)
  Assignment operator.
- ~**DocViewsMutableSliceIterator** ()
  Non-trivial dtor.
- int **GetID** () const
  Returns the view ID.
- const DocView & **GetView** () const
  Returns the view (const ref)
- DocView & **GetMutableView** () const
  Returns the view (mutable ref)
- const DocTagsCollection & **GetTags** () const
  Returns the collection of tags associated with this view.
- const DocView * **GetViewPtr** () const
  Returns the view (const ptr)
- DocView * **GetMutableViewPtr** () const
  Returns the view (mutable ptr)
- const DocTagsCollection * **GetTagsPtr** () const
  Returns the collection of tags associated with this view.
- void **Advance** ()
  Switches the iterator to point on the next view.
- bool **Finished** () const
  Returns true iff the iterator points to the end of the subset of views with a given tag.

Static Public Member Functions

- static DocViewsMutableSliceIterator **ConstructFromImpl** (const DocViewsMutableSliceIteratorImpl &pimpl)
  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocViewsMutableSliceIterator** (const DocViewsMutableSliceIteratorImpl &pimpl)
  Private ctor from internal implementation.

Private Attributes

- DocViewsMutableSliceIteratorImpl * pimpl_
  Pointer to internal implementation.

1.93.1 Detailed Description

Mutable-ref iterator for views with a given tag.

Definition at line 177 of file doc_views_iterator.h.

1.93.2 Member Data Documentation

pimpl_

```
DocViewsMutableSliceIteratorImpl* se::doc::DocViewsMutableSliceIterator::pimpl_  [private]
```

Pointer to internal implementation.

Definition at line 218 of file doc_views_iterator.h.

1.94 se::doc::DocViewsSliceIterator Class Reference

Const-ref iterator for views with a given tag.

```
#include <doc_views_iterator.h>
```

Public Member Functions

- **DocViewsSliceIterator** (const DocViewsSliceIterator &other)
  Copy ctor.
- DocViewsSliceIterator & **operator=** (const DocViewsSliceIterator &other)
  Assignment operator.
- ~**DocViewsSliceIterator** ()
  Non-trivial dtor.
- int **GetID** () const
  Returns the view ID.
- const DocView & **GetView** () const
  Returns the view (const ref)
- const DocTagsCollection & **GetTags** () const
  Returns the collection of tags associated with this view.
- const DocView * **GetViewPtr** () const
  Returns the view (const ptr)
- const DocTagsCollection * **GetTagsPtr** () const
  Returns the collection of tags associated with this view.
- void **Advance** ()
  Switches the iterator to point on the next view.
- bool **Finished** () const
  Returns true iff the iterator points to the end of the subset of views with a given tag.

Static Public Member Functions

- static DocViewsSliceIterator **ConstructFromImpl** (const DocViewsSliceIteratorImpl &pimpl)
  Factory method - constructs an iterator from its internal implementation.

Private Member Functions

- **DocViewsSliceIterator** (const DocViewsSliceIteratorImpl &pimpl)

  Private ctor from internal implementation.

Private Attributes

- DocViewsSliceIteratorImpl * pimpl_

  Pointer to internal implementation.

1.94.1 Detailed Description

Const-ref iterator for views with a given tag.

Definition at line 130 of file doc_views_iterator.h.

1.94.2 Member Data Documentation

pimpl_

```
DocViewsSliceIteratorImpl* se::doc::DocViewsSliceIterator::pimpl_  [private]
```

Pointer to internal implementation.

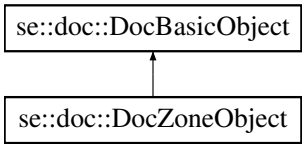
Definition at line 166 of file doc_views_iterator.h.

1.95 se::doc::DocZoneObject Class Reference

The graphical object representing a localized document zone.

```
#include <doc_objects.h>
```

Inheritance diagram for se::doc::DocZoneObject:



Public Member Functions

- virtual ~**DocZoneObject** () override=default

  Default dtor.
- virtual const se::common::Size & **GetSize** () const =0

  Returns the standard pixel size of the zone (const ref)
- virtual se::common::Size & **GetMutableSize** ()=0

  Returns the standard pixel size of the zone (mutable ref)
- virtual const se::common::Size * **GetSizePtr** () const =0

  Returns the standard pixel size of the zone (const ptr)
- virtual se::common::Size * **GetMutableSizePtr** ()=0

  Returns the standard pixel size of the zone (mutable ptr)
- virtual void **SetSize** (const se::common::Size &size)=0

  Sets the standard pixel size of the zone.

Public Member Functions inherited from se::doc::DocBasicObject

- virtual ~**DocBasicObject** ()=default

  Default dtor.
- virtual const char * **ObjectType** () const =0

  Returns the name of the concrete object type.
- virtual const DocBaseObjectInfo & **GetBaseObjectInfo** () const =0

  Returns the general basic object info (const ref)
- virtual DocBaseObjectInfo & **GetMutableBaseObjectInfo** ()=0

  Returns the general basic object info (mutable ref ref)
- virtual const DocBaseObjectInfo * **GetBaseObjectInfoPtr** () const =0

  Returns the general basic object info (const ptr)
- virtual DocBaseObjectInfo * **GetMutableBaseObjectInfoPtr** ()=0

  Returns the general basic object info (mutable ptr)
- virtual void **Serialize** (se::common::Serializer &serializer) const =0

  Serializes the object instance with a given serializer object.

Static Public Member Functions

- static const char * **ObjectTypeStatic** ()

  Returns the object type name.

Static Public Member Functions inherited from se::doc::DocBasicObject

- static const char * **BaseClassNameStatic** ()

  Static class name method, returns 'DocBasicObject'.

1.95.1 Detailed Description

The graphical object representing a localized document zone.

Definition at line 98 of file doc_objects.h.

2 File Documentation

2.1 doc_basic_object.h File Reference

Basic graphical object for Smart Document Engine.

Classes

- class se::doc::DocBaseObjectInfo

  The class representing basic information about a graphical object.
- class se::doc::DocBasicObject

  The class representing a basic graphical object.

2.1.1 Detailed Description

Basic graphical object for Smart Document Engine.

Definition in file doc_basic_object.h.

2.2 doc_basic_object.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_BASIC_OBJECT_H_INCLUDED
00012 #define DOCENGINE_DOC_BASIC_OBJECT_H_INCLUDED
00013
00014 #include <docengine/doc_forward_declarations.h>
00015 #include <secommon/se_common.h>
00016
00017 namespace se { namespace doc {
00018
00019
00023 class SE_DLL_EXPORT DocBaseObjectInfo {
00024 public:
00026   virtual ~DocBaseObjectInfo() = default;
00027
00029   virtual int GetViewID() const = 0;
00031   virtual void SetViewID(int view_id) = 0;
00032
00034   virtual double GetConfidence() const = 0;
00036   virtual void SetConfidence(double conf) = 0;
00037
00039   virtual bool GetAcceptFlag() const = 0;
00041   virtual void SetAcceptFlag(bool is_accepted) = 0;
00042
00045   virtual const se::common::Polygon& GetGeometry() const = 0;
00048   virtual se::common::Polygon& GetMutableGeometry() = 0;
00050   virtual const se::common::Polygon* GetGeometryPtr() const = 0;
00053   virtual se::common::Polygon* GetMutableGeometryPtr() = 0;
00056   virtual void SetGeometry(const se::common::Polygon& geometry) = 0;
00057
00059   virtual int GetAttributesCount() const = 0;
00061   virtual bool HasAttribute(const char* attr_name) const = 0;
00063   virtual const char* GetAttribute(const char* attr_name) const = 0;
00065   virtual void SetAttribute(const char* attr_name, const char* attr_value) = 0;
00067   virtual void RemoveAttribute(const char* attr_name) = 0;
00069   virtual se::common::StringsMapIterator AttributesBegin() const = 0;
00071   virtual se::common::StringsMapIterator AttributesEnd() const = 0;
00072
00074   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00075 };
00076
00077
00081 class SE_DLL_EXPORT DocBasicObject {
00082 public:
00084   static const char* BaseClassNameStatic();
00085
00086 public:
00088   virtual ~DocBasicObject() = default;
00089
00091   virtual const char* ObjectType() const = 0;
00092
00094   virtual const DocBaseObjectInfo& GetBaseObjectInfo() const = 0;
00096   virtual DocBaseObjectInfo& GetMutableBaseObjectInfo() = 0;
00098   virtual const DocBaseObjectInfo* GetBaseObjectInfoPtr() const = 0;
00100   virtual DocBaseObjectInfo* GetMutableBaseObjectInfoPtr() = 0;
00101
00103   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00104 };
00105
00106
00107 } } // namespace se::doc
00108
00109 #endif // DOCENGINE_DOC_BASIC_OBJECT_H_INCLUDED
```

2.3 doc_basic_objects_iterator.h File Reference

Iterators for basic graphical objects.

Classes

- class se::doc::DocBasicObjectsIterator

  Basic const-ref iterator for a collection of basic graphical objects.
- class se::doc::DocBasicObjectsMutableIterator

  Mutable-ref iterator for a collection of basic graphical objects.
- class se::doc::DocBasicObjectsSliceIterator

  Const-ref iterator for a basic objects which have a given tag.
- class se::doc::DocBasicObjectsMutableSliceIterator

  Mutable-ref iterator for a basic objects which have a given tag.
- class se::doc::DocBasicObjectsCrossSliceIterator

  Const-ref iterator for basic objects across multiple collections.
- class se::doc::DocBasicObjectsMutableCrossSliceIterator

  Mutable-ref iterator for basic objects across multiple collections.

2.3.1 Detailed Description

Iterators for basic graphical objects.

Definition in file doc_basic_objects_iterator.h.

2.4 doc_basic_objects_iterator.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_BASIC_OBJECTS_ITERATOR_H_INCLUDED
00012 #define DOCENGINE_DOC_BASIC_OBJECTS_ITERATOR_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015 #include <docengine/doc_forward_declarations.h>
00016
00017 namespace se { namespace doc {
00018
00019
00022 class DocBasicObjectsIteratorImpl;
00023
00027 class SE_DLL_EXPORT DocBasicObjectsIterator {
00028 private:
00030   DocBasicObjectsIterator(const DocBasicObjectsIteratorImpl& pimpl);
00031
00032 public:
00034   DocBasicObjectsIterator(const DocBasicObjectsIterator& other);
00036   DocBasicObjectsIterator& operator =(const DocBasicObjectsIterator& other);
00038   ~DocBasicObjectsIterator();
00039
00041   static DocBasicObjectsIterator ConstructFromImpl(
00042       const DocBasicObjectsIteratorImpl& pimpl);
00043
00045   int GetID() const;
00047   const DocBasicObject& GetBasicObject() const;
00049   const DocTagsCollection& GetTags() const;
00051   const DocBasicObject* GetBasicObjectPtr() const;
00053   const DocTagsCollection* GetTagsPtr() const;
00055   void Advance();
00056
00058   bool Equals(const DocBasicObjectsIterator& rvalue) const;
00060   bool operator ==(const DocBasicObjectsIterator& rvalue) const;
00062   bool operator !=(const DocBasicObjectsIterator& rvalue) const;
00063
00064 private:
00066   DocBasicObjectsIteratorImpl* pimpl_;
00067 };
00068
00069
```

```
00072 class DocBasicObjectsMutableIteratorImpl;
00073
00077 class SE_DLL_EXPORT DocBasicObjectsMutableIterator {
00078 private:
00080   DocBasicObjectsMutableIterator(const DocBasicObjectsMutableIteratorImpl& pimpl);
00081
00082 public:
00084   DocBasicObjectsMutableIterator(const DocBasicObjectsMutableIterator& other);
00086   DocBasicObjectsMutableIterator& operator =(
00087       const DocBasicObjectsMutableIterator& other);
00089   ~DocBasicObjectsMutableIterator();
00090
00092   static DocBasicObjectsMutableIterator ConstructFromImpl(
00093       const DocBasicObjectsMutableIteratorImpl& pimpl);
00094
00096   int GetID() const;
00098   const DocBasicObject& GetBasicObject() const;
00100   DocBasicObject& GetMutableBasicObject() const;
00102   const DocTagsCollection& GetTags() const;
00104   const DocBasicObject* GetBasicObjectPtr() const;
00106   DocBasicObject* GetMutableBasicObjectPtr() const;
00108   const DocTagsCollection* GetTagsPtr() const;
00110   void Advance();
00111
00113   bool Equals(const DocBasicObjectsMutableIterator& rvalue) const;
00115   bool operator ==(const DocBasicObjectsMutableIterator& rvalue) const;
00117   bool operator !=(const DocBasicObjectsMutableIterator& rvalue) const;
00118
00119 private:
00121   DocBasicObjectsMutableIteratorImpl* pimpl_;
00122 };
00123
00124
00127 class DocBasicObjectsSliceIteratorImpl;
00128
00129
00133 class SE_DLL_EXPORT DocBasicObjectsSliceIterator {
00134 private:
00136   DocBasicObjectsSliceIterator(const DocBasicObjectsSliceIteratorImpl& pimpl);
00137
00138 public:
00140   DocBasicObjectsSliceIterator(const DocBasicObjectsSliceIterator& other);
00142   DocBasicObjectsSliceIterator& operator =(
00143       const DocBasicObjectsSliceIterator& other);
00145   ~DocBasicObjectsSliceIterator();
00146
00148   static DocBasicObjectsSliceIterator ConstructFromImpl(
00149       const DocBasicObjectsSliceIteratorImpl& pimpl);
00150
00152   int GetID() const;
00154   const DocBasicObject& GetBasicObject() const;
00156   const DocTagsCollection& GetTags() const;
00158   const DocBasicObject* GetBasicObjectPtr() const;
00160   const DocTagsCollection* GetTagsPtr() const;
00162   void Advance();
00163
00166   bool Finished() const;
00167
00168 private:
00170   DocBasicObjectsSliceIteratorImpl* pimpl_;
00171 };
00172
00173
00176 class DocBasicObjectsMutableSliceIteratorImpl;
00177
00181 class SE_DLL_EXPORT DocBasicObjectsMutableSliceIterator {
00182 private:
00184   DocBasicObjectsMutableSliceIterator(
00185       const DocBasicObjectsMutableSliceIteratorImpl& pimpl);
00186
00187 public:
00189   DocBasicObjectsMutableSliceIterator(
00190       const DocBasicObjectsMutableSliceIterator& other);
00192   DocBasicObjectsMutableSliceIterator& operator =(
00193       const DocBasicObjectsMutableSliceIterator& other);
00195   ~DocBasicObjectsMutableSliceIterator();
00196
00198   static DocBasicObjectsMutableSliceIterator ConstructFromImpl(
00199       const DocBasicObjectsMutableSliceIteratorImpl& pimpl);
00200
00202   int GetID() const;
00204   const DocBasicObject& GetBasicObject() const;
00206   DocBasicObject& GetMutableBasicObject() const;
00208   const DocTagsCollection& GetTags() const;
00210   const DocBasicObject* GetBasicObjectPtr() const;
00212   DocBasicObject* GetMutableBasicObjectPtr() const;
00214   const DocTagsCollection* GetTagsPtr() const;
```

```
00216   void Advance();
00217
00220   bool Finished() const;
00221
00222 private:
00224   DocBasicObjectsMutableSliceIteratorImpl* pimpl_;
00225 };
00226
00227
00230 class DocBasicObjectsCrossSliceIteratorImpl;
00231
00235 class SE_DLL_EXPORT DocBasicObjectsCrossSliceIterator {
00236 private:
00238   DocBasicObjectsCrossSliceIterator(
00239       const DocBasicObjectsCrossSliceIteratorImpl& pimpl);
00240
00241 public:
00243   DocBasicObjectsCrossSliceIterator(
00244       const DocBasicObjectsCrossSliceIterator& other);
00246   DocBasicObjectsCrossSliceIterator& operator =(
00247       const DocBasicObjectsCrossSliceIterator& other);
00249   ~DocBasicObjectsCrossSliceIterator();
00250
00252   static DocBasicObjectsCrossSliceIterator ConstructFromImpl(
00253       const DocBasicObjectsCrossSliceIteratorImpl& pimpl);
00254
00256   int GetCollectionID() const;
00258   int GetObjectID() const;
00260   const DocBasicObject& GetBasicObject() const;
00262   const DocTagsCollection& GetTags() const;
00264   const DocBasicObject* GetBasicObjectPtr() const;
00266   const DocTagsCollection* GetTagsPtr() const;
00268   void Advance();
00269
00271   bool Equals(const DocBasicObjectsCrossSliceIterator& rvalue) const;
00273   bool operator ==(const DocBasicObjectsCrossSliceIterator& rvalue) const;
00275   bool operator !=(const DocBasicObjectsCrossSliceIterator& rvalue) const;
00276
00277 private:
00279   DocBasicObjectsCrossSliceIteratorImpl* pimpl_;
00280 };
00281
00282
00285 class DocBasicObjectsMutableCrossSliceIteratorImpl;
00286
00290 class SE_DLL_EXPORT DocBasicObjectsMutableCrossSliceIterator {
00291 private:
00293   DocBasicObjectsMutableCrossSliceIterator(
00294       const DocBasicObjectsMutableCrossSliceIteratorImpl& pimpl);
00295
00296 public:
00298   DocBasicObjectsMutableCrossSliceIterator(
00299       const DocBasicObjectsMutableCrossSliceIterator& other);
00301   DocBasicObjectsMutableCrossSliceIterator& operator =(
00302       const DocBasicObjectsMutableCrossSliceIterator& other);
00304   ~DocBasicObjectsMutableCrossSliceIterator();
00305
00307   static DocBasicObjectsMutableCrossSliceIterator ConstructFromImpl(
00308       const DocBasicObjectsMutableCrossSliceIteratorImpl& pimpl);
00309
00311   int GetCollectionID() const;
00313   int GetObjectID() const;
00315   const DocBasicObject& GetBasicObject() const;
00317   DocBasicObject& GetMutableBasicObject();
00319   const DocTagsCollection& GetTags() const;
00321   const DocBasicObject* GetBasicObjectPtr() const;
00323   DocBasicObject* GetMutableBasicObjectPtr();
00325   const DocTagsCollection* GetTagsPtr() const;
00327   void Advance();
00328
00330   bool Equals(const DocBasicObjectsMutableCrossSliceIterator& rvalue) const;
00332   bool operator ==(
00333       const DocBasicObjectsMutableCrossSliceIterator& rvalue) const;
00335   bool operator !=(
00336       const DocBasicObjectsMutableCrossSliceIterator& rvalue) const;
00337
00338 private:
00340   DocBasicObjectsMutableCrossSliceIteratorImpl* pimpl_;
00341 };
00342
00343
00344 } } // namespace se::doc
00345
00346 #endif // DOCENGINE_DOC_BASIC_OBJECTS_ITERATOR_H_INCLUDED
```

2.5 doc_document.h File Reference

Classes of Smart Document Engine document representation.

Classes

- class se::doc::Document

  Class representing a recognized Document.

2.5.1 Detailed Description

Classes of Smart Document Engine document representation.

Definition in file doc_document.h.

2.6 doc_document.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_DOCUMENT_H_INCLUDED
00012 #define DOCENGINE_DOC_DOCUMENT_H_INCLUDED
00013
00014 #include <docengine/doc_fields_iterators.h>
00015 #include <secommon/se_common.h>
00016
00017 namespace se { namespace doc {
00018
00022 class SE_DLL_EXPORT Document {
00023 public:
00025   static const char* BaseClassNameStatic();
00026
00027 public:
00029   virtual ~Document() = default;
00030
00032   virtual int GetTextFieldsCount() const = 0;
00034   virtual bool HasTextField(const char* name) const = 0;
00036   virtual const DocTextField& GetTextField(const char* name) const = 0;
00038   virtual DocTextField& GetMutableTextField(const char* name) = 0;
00040   virtual const DocTextField* GetTextFieldPtr(const char* name) const = 0;
00042   virtual DocTextField* GetMutableTextFieldPtr(const char* name) = 0;
00044   virtual void SetTextField(const char* name, const DocTextField& field) = 0;
00046   virtual void RemoveTextField(const char* name) = 0;
00048   virtual DocTextFieldsIterator TextFieldsBegin() const = 0;
00050   virtual DocTextFieldsIterator TextFieldsEnd() const = 0;
00051
00053   virtual int GetImageFieldsCount() const = 0;
00055   virtual bool HasImageField(const char* name) const = 0;
00057   virtual const DocImageField& GetImageField(const char* name) const = 0;
00059   virtual DocImageField& GetMutableImageField(const char* name) = 0;
00061   virtual const DocImageField* GetImageFieldPtr(const char* name) const = 0;
00063   virtual DocImageField* GetMutableImageFieldPtr(const char* name) = 0;
00065   virtual void SetImageField(const char* name, const DocImageField& field) = 0;
00067   virtual void RemoveImageField(const char* name) = 0;
00069   virtual DocImageFieldsIterator ImageFieldsBegin() const = 0;
00071   virtual DocImageFieldsIterator ImageFieldsEnd() const = 0;
00072
00074   virtual int GetCheckboxFieldsCount() const = 0;
00076   virtual bool HasCheckboxField(const char* name) const = 0;
00078   virtual const DocCheckboxField& GetCheckboxField(const char* name) const = 0;
00080   virtual DocCheckboxField& GetMutableCheckboxField(const char* name) = 0;
00082   virtual const DocCheckboxField* GetCheckboxFieldPtr(const char* name) const = 0;
00084   virtual DocCheckboxField* GetMutableCheckboxFieldPtr(const char* name) = 0;
00086   virtual void SetCheckboxField(const char* name, const DocCheckboxField& field) = 0;
00088   virtual void RemoveCheckboxField(const char* name) = 0;
00090   virtual DocCheckboxFieldsIterator CheckboxFieldsBegin() const = 0;
00092   virtual DocCheckboxFieldsIterator CheckboxFieldsEnd() const = 0;
```

```
00093
00095   virtual int GetForensicFieldsCount() const = 0;
00097   virtual bool HasForensicField(const char* name) const = 0;
00099   virtual const DocForensicField& GetForensicField(const char* name) const = 0;
00101   virtual DocForensicField& GetMutableForensicField(const char* name) = 0;
00103   virtual const DocForensicField* GetForensicFieldPtr(const char* name) const = 0;
00105   virtual DocForensicField* GetMutableForensicFieldPtr(const char* name) = 0;
00107   virtual void SetForensicField(const char* name, const DocForensicField& field) = 0;
00109   virtual void RemoveForensicField(const char* name) = 0;
00111   virtual DocForensicFieldsIterator ForensicFieldsBegin() const = 0;
00113   virtual DocForensicFieldsIterator ForensicFieldsEnd() const = 0;
00114
00116   virtual int GetForensicCheckFieldsCount() const = 0;
00118   virtual bool HasForensicCheckField(const char* name) const = 0;
00120   virtual const DocForensicCheckField& GetForensicCheckField(const char* name) const = 0;
00122   virtual DocForensicCheckField& GetMutableForensicCheckField(const char* name) = 0;
00124   virtual const DocForensicCheckField* GetForensicCheckFieldPtr(const char* name) const = 0;
00126   virtual DocForensicCheckField* GetMutableForensicCheckFieldPtr(const char* name) = 0;
00128   virtual void SetForensicCheckField(const char* name, const DocForensicCheckField& field) = 0;
00130   virtual void RemoveForensicCheckField(const char* name) = 0;
00132   virtual DocForensicCheckFieldsIterator ForensicCheckFieldsBegin() const = 0;
00134   virtual DocForensicCheckFieldsIterator ForensicCheckFieldsEnd() const = 0;
00135
00137   virtual int GetTableFieldsCount() const = 0;
00139   virtual bool HasTableField(const char* name) const = 0;
00141   virtual const DocTableField& GetTableField(const char* name) const = 0;
00143   virtual DocTableField& GetMutableTableField(const char* name) = 0;
00145   virtual const DocTableField* GetTableFieldPtr(const char* name) const = 0;
00147   virtual DocTableField* GetMutableTableFieldPtr(const char* name) = 0;
00149   virtual void SetTableField(const char* name, const DocTableField& field) = 0;
00151   virtual void RemoveTableField(const char* name) = 0;
00153   virtual DocTableFieldsIterator TableFieldsBegin() const = 0;
00155   virtual DocTableFieldsIterator TableFieldsEnd() const = 0;
00156
00158   virtual int GetBarcodeFieldsCount() const = 0;
00160   virtual bool HasBarcodeField(const char* name) const = 0;
00162   virtual const DocBarcodeField& GetBarcodeField(const char* name) const = 0;
00164   virtual DocBarcodeField& GetMutableBarcodeField(const char* name) = 0;
00166   virtual const DocBarcodeField* GetBarcodeFieldPtr(const char* name) const = 0;
00168   virtual DocBarcodeField* GetMutableBarcodeFieldPtr(const char* name) = 0;
00170   virtual void SetBarcodeField(const char* name, const DocBarcodeField& field) = 0;
00172   virtual void RemoveBarcodeField(const char* name) = 0;
00174   virtual DocBarcodeFieldsIterator BarcodeFieldsBegin() const = 0;
00176   virtual DocBarcodeFieldsIterator BarcodeFieldsEnd() const = 0;
00177
00179   virtual int GetAttributesCount() const = 0;
00181   virtual bool HasAttribute(const char* attr_name) const = 0;
00183   virtual const char* GetAttribute(const char* attr_name) const = 0;
00185   virtual void SetAttribute(const char* attr_name, const char* attr_value) = 0;
00187   virtual void RemoveAttribute(const char* attr_name) = 0;
00189   virtual se::common::StringsMapIterator AttributesBegin() const = 0;
00191   virtual se::common::StringsMapIterator AttributesEnd() const = 0;
00192
00194   virtual const char* GetType() const = 0;
00195
00197   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00198
00200   virtual int GetPhysicalDocIdx() const = 0;
00201 };
00202
00203
00204 } } // namespace se::doc
00205
00206 #endif // DOCENGINE_DOC_DOCUMENT_H_INCLUDED
```

2.7 doc_documents_iterator.h File Reference

Smart Document Engine documents iterator.

Classes

- class se::doc::DocumentsIterator

  A constant iterator for a collection of Document instances.
- class se::doc::DocumentsMutableIterator

  A mutable iterator for a collection of Document instances.
- class se::doc::DocumentsSliceIterator

A const iterator for a subset of the collection of Document instances.

- class se::doc::DocumentsMutableSliceIterator

  A mutable iterator for a subset of the collection of Document instances.

2.7.1 Detailed Description

Smart Document Engine documents iterator.

Definition in file doc_documents_iterator.h.

2.8 doc_documents_iterator.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_DOCUMENTS_ITERATOR_H_INCLUDED
00012 #define DOCENGINE_DOC_DOCUMENTS_ITERATOR_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015 #include <docengine/doc_forward_declarations.h>
00016
00017 namespace se { namespace doc {
00018
00021 class DocumentsIteratorImpl;
00022
00026 class SE_DLL_EXPORT DocumentsIterator {
00027 private:
00029   DocumentsIterator(const DocumentsIteratorImpl& pimpl);
00030 public:
00032   DocumentsIterator(const DocumentsIterator& other);
00034   DocumentsIterator& operator =(const DocumentsIterator& other);
00036   ~DocumentsIterator();
00037
00039   static DocumentsIterator ConstructFromImpl(
00040       const DocumentsIteratorImpl& pimpl);
00041
00043   int GetID() const;
00045   const Document& GetDocument() const;
00047   const DocTagsCollection& GetTags() const;
00049   const Document* GetDocumentPtr() const;
00051   const DocTagsCollection* GetTagsPtr() const;
00053   void Advance();
00055   void operator ++();
00056
00058   bool Equals(const DocumentsIterator& rvalue) const;
00060   bool operator ==(const DocumentsIterator& rvalue) const;
00062   bool operator !=(const DocumentsIterator& rvalue) const;
00063
00064 private:
00066   DocumentsIteratorImpl* pimpl_;
00067 };
00068
00071 class DocumentsMutableIteratorImpl;
00072
00076 class SE_DLL_EXPORT DocumentsMutableIterator {
00077 private:
00079   DocumentsMutableIterator(const DocumentsMutableIteratorImpl& pimpl);
00080
00081 public:
00083   DocumentsMutableIterator(const DocumentsMutableIterator& other);
00085   DocumentsMutableIterator& operator =(const DocumentsMutableIterator& other);
00087   ~DocumentsMutableIterator();
00088
00090   static DocumentsMutableIterator ConstructFromImpl(
00091       const DocumentsMutableIteratorImpl& pimpl);
00092
00094   int GetID() const;
00096   const Document& GetDocument() const;
00098   Document& GetMutableDocument() const;
00100   const DocTagsCollection& GetTags() const;
00102   const Document* GetDocumentPtr() const;
00104   Document* GetMutableDocumentPtr() const;
```

```
00106   const DocTagsCollection* GetTagsPtr() const;
00108   void Advance();
00110   void operator ++();
00111
00113   bool Equals(const DocumentsMutableIterator& rvalue) const;
00115   bool operator ==(const DocumentsMutableIterator& rvalue) const;
00117   bool operator !=(const DocumentsMutableIterator& rvalue) const;
00118
00119 private:
00121   DocumentsMutableIteratorImpl* pimpl_;
00122 };
00123
00124
00127 class DocumentsSliceIteratorImpl;
00128
00132 class SE_DLL_EXPORT DocumentsSliceIterator {
00133 private:
00135   DocumentsSliceIterator(const DocumentsSliceIteratorImpl& pimpl);
00136
00137 public:
00139   DocumentsSliceIterator(const DocumentsSliceIterator& other);
00141   DocumentsSliceIterator& operator =(const DocumentsSliceIterator& other);
00143   ~DocumentsSliceIterator();
00144
00146   static DocumentsSliceIterator ConstructFromImpl(
00147       const DocumentsSliceIteratorImpl& pimpl);
00148
00150   int GetID() const;
00152   const Document& GetDocument() const;
00154   const DocTagsCollection& GetTags() const;
00156   const Document* GetDocumentPtr() const;
00158   const DocTagsCollection* GetTagsPtr() const;
00160   void Advance();
00162   void operator ++();
00163
00165   bool Finished() const;
00166
00167 private:
00169   DocumentsSliceIteratorImpl* pimpl_;
00170 };
00171
00172
00175 class DocumentsMutableSliceIteratorImpl;
00176
00181 class SE_DLL_EXPORT DocumentsMutableSliceIterator {
00182 private:
00184   DocumentsMutableSliceIterator(const DocumentsMutableSliceIteratorImpl& pimpl);
00185
00186 public:
00188   DocumentsMutableSliceIterator(const DocumentsMutableSliceIterator& other);
00190   DocumentsMutableSliceIterator& operator =(
00191       const DocumentsMutableSliceIterator& other);
00193   ~DocumentsMutableSliceIterator();
00194
00196   static DocumentsMutableSliceIterator ConstructFromImpl(
00197       const DocumentsMutableSliceIteratorImpl& pimpl);
00198
00200   int GetID() const;
00202   const Document& GetDocument() const;
00204   Document& GetMutableDocument() const;
00206   const DocTagsCollection& GetTags() const;
00208   const Document* GetDocumentPtr() const;
00210   Document* GetMutableDocumentPtr() const;
00212   const DocTagsCollection* GetTagsPtr() const;
00214   void Advance();
00216   void operator ++();
00217
00219   bool Finished() const;
00220
00221 private:
00223   DocumentsMutableSliceIteratorImpl* pimpl_;
00224 };
00225
00226
00227 } } // namespace se::doc
00228
00229 #endif // DOCENGINE_DOC_DOCUMENTS_ITERATOR_H_INCLUDED
```

2.9 doc_engine.h File Reference

Main engine class of Smart Document Engine.

Classes

- class se::doc::DocEngine

  The main DocEngine class containing all configuration and resources of the Smart Document Engine.

2.9.1 Detailed Description

Main engine class of Smart Document Engine.

Definition in file doc_engine.h.

2.10 doc_engine.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_ENGINE_H_INCLUDED
00012 #define DOCENGINE_DOC_ENGINE_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_forward_declarations.h>
00016
00017 namespace se { namespace doc {
00018
00019
00024 class SE_DLL_EXPORT DocEngine {
00025 public:
00027   virtual ~DocEngine() = default;
00028
00035   virtual DocSessionSettings* CreateSessionSettings() const = 0;
00036
00049   virtual DocSession* SpawnSession(
00050       const DocSessionSettings& settings,
00051       const char*               signature,
00052       DocFeedback*              feedback_reporter = nullptr,
00053       DocExternalProcessorInterface* external_processor = nullptr) const = 0;
00054
00062   virtual DocSessionSettings* CreateVideoSessionSettings() const = 0;
00063
00074    virtual DocVideoSession* SpawnVideoSession(
00075       const DocSessionSettings& settings,
00076       const char*               signature,
00077       DocFeedback*              feedback_reporter = nullptr) const = 0;
00078
00079 public:
00091   static DocEngine* Create(
00092       const char* config_path,
00093       bool        lazy_configuration = true);
00094
00107   static DocEngine* Create(
00108       unsigned char*  config_data,
00109       int             config_data_length,
00110       bool            lazy_configuration = true);
00111
00122   static DocEngine* CreateFromEmbeddedBundle(
00123       bool           lazy_configuration = true);
00124
00129   static const char* GetVersion();
00130 };
00131
00132
00133 } } // namespace se::doc
00134
00135 #endif // DOCENGINE_DOC_ENGINE_H_INCLUDED
```

2.11 doc_external_processor.h File Reference

Smart Document Engine external processor interface and auxilliary classes.

Classes

- class se::doc::DocProcessingArguments

  The class representing the processing arguments for a custom document processor.
- class se::doc::DocExternalProcessorInterface

  The abstract interface for custom document processor.

2.11.1 Detailed Description

Smart Document Engine external processor interface and auxilliary classes.

Definition in file doc_external_processor.h.

2.12 doc_external_processor.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00012 #ifndef DOCENGINE_DOC_EXTERNAL_PROCESSOR_H_INCLUDED
00013 #define DOCENGINE_DOC_EXTERNAL_PROCESSOR_H_INCLUDED
00014
00015 #include <secommon/se_export_defs.h>
00016 #include <docengine/doc_forward_declarations.h>
00017
00018 namespace se { namespace doc {
00019
00020
00025 class SE_DLL_EXPORT DocProcessingArguments {
00026 public:
00028   virtual ~DocProcessingArguments() = default;
00029
00031   virtual int GetTagArgumentsCount() const = 0;
00033   virtual const char* GetTagArgument(int index) const = 0;
00035   virtual void SetTagArgument(int index, const char* argument) = 0;
00037   virtual void Resize(int size) = 0;
00038 };
00039
00040
00044 class SE_DLL_EXPORT DocExternalProcessorInterface {
00045 public:
00047   virtual ~DocExternalProcessorInterface() = default;
00048
00059   virtual void Process(
00060       DocResult&                   recognition_result,
00061       const DocProcessingSettings&  processing_settings,
00062       const DocProcessingArguments& processing_arguments) = 0;
00063 };
00064
00065
00066 } } // namespace se::doc
00067
00068 #endif // DOCENGINE_DOC_EXTERNAL_PROCESSOR_H_INCLUDED
```

2.13 doc_feedback.h File Reference

Smart Document Engine feedback reporting classes.

Classes

- class se::doc::DocRawFieldFeedback
- class se::doc::DocRawFieldsFeedbackContainer
- class se::doc::DocPageFeedback
- class se::doc::DocPagesFeedbackContainer

  The class representing a feedback container for pages. Not implemented in the current version of Smart Document Engine.
- class se::doc::DocFeedbackContainer

  The class representing a custom feedback container. Not implemented in the current version of Smart Document Engine.
- class se::doc::DocFeedback

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

2.13.1 Detailed Description

Smart Document Engine feedback reporting classes.

Definition in file doc_feedback.h.

2.14 doc_feedback.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_FEEDBACK_H_INCLUDED
00012 #define DOCENGINE_DOC_FEEDBACK_H_INCLUDED
00013
00014 #include "secommon/se_common.h"
00015
00016 #include <secommon/se_export_defs.h>
00017 #include <docengine/doc_forward_declarations.h>
00018
00019 namespace se { namespace doc {
00020
00021 class SE_DLL_EXPORT DocRawFieldFeedback {
00022 public:
00024     virtual ~DocRawFieldFeedback() = default;
00025
00027     virtual const char* GetName() const = 0;
00028
00030     virtual bool HasQuadrangle() const = 0;
00031
00033     virtual const se::common::Quadrangle& GetQuadrangle() const = 0;
00034
00036     virtual const char* GetType() const = 0;
00037
00039     virtual const se::common::OcrString GetOcrString() const = 0;
00040 };
00041
00042 class SE_DLL_EXPORT DocRawFieldsFeedbackContainer {
00043 public:
00045     virtual ~DocRawFieldsFeedbackContainer() = default;
00046
00048     virtual int GetRawFieldCount() const = 0;
00049
00051     virtual int GetSourcePageID() const = 0;
00052
00054     virtual const DocRawFieldFeedback& GetRawFieldFeedback(const int idx) const = 0;
00055 };
00056
00057 class SE_DLL_EXPORT DocPageFeedback {
00058 public:
00060     virtual ~DocPageFeedback() = default;
00061
00063     virtual const se::common::Quadrangle& GetQuadrangle() const = 0;
```

```
00064
00066     virtual int GetID() const = 0;
00067
00069     virtual const char* GetType() const = 0;
00070
00072     virtual bool IsPageRejected() const = 0;
00073 };
00074
00079 class SE_DLL_EXPORT DocPagesFeedbackContainer {
00080 public:
00082     virtual ~DocPagesFeedbackContainer() = default;
00083
00085     virtual int GetPageCount() const = 0;
00086
00088     virtual const DocPageFeedback& GetPageFeedback(const int idx) const = 0;
00089 };
00090
00095 class SE_DLL_EXPORT DocFeedbackContainer {
00096 public:
00098   virtual ~DocFeedbackContainer() = default;
00100   virtual se::common::StringsMapIterator FeedbackFieldIteratorBegin() const = 0;
00102   virtual se::common::StringsMapIterator FeedbackFieldIteratorEnd() const = 0;
00104   virtual se::common::QuadranglesMapIterator FeedbackQuadIteratorBegin() const = 0;
00106   virtual se::common::QuadranglesMapIterator FeedbackQuadIteratorEnd() const = 0;
00108   virtual void SetFeedbackField(const char* key, const char* field) = 0;
00110   virtual void SetFeedbackQuad(const char* key, const se::common::Quadrangle& quad) = 0;
00111 };
00112
00113
00118 class SE_DLL_EXPORT DocFeedback {
00119 public:
00121   virtual ~DocFeedback() = default;
00122
00127   virtual void FeedbackReceived(const DocFeedbackContainer& container) = 0;
00128
00131   virtual bool AcceptsPagesLocalizationFeedback() const;
00132
00137   virtual void PagesLocalizationFeedbackReceived(const DocPagesFeedbackContainer& container) const =
      0;
00138
00141   virtual bool AcceptsPagePreprocessingFeedback() const;
00142
00147   virtual void PagePrepocessingFeedbackReceived(const DocPagesFeedbackContainer& container) const = 0;
00148
00151   virtual bool AcceptsRawFieldsLocalizationFeedback() const;
00152
00157   virtual void RawFieldsLocalizationFeedbackReceived(const DocRawFieldsFeedbackContainer& container)
      const = 0;
00158
00161   virtual bool AcceptsRawFieldsRecognitionFeedback() const;
00162
00167   virtual void RawFiedlsRecognitionFeedbackReceived(const DocRawFieldsFeedbackContainer& container)
      const = 0;
00168
00169
00174   virtual void ResultReceived(const DocResult& result_received) = 0;
00175 };
00176
00177
00178 } } // namespace se::doc
00179
00180 #endif // DOCENGINE_DOC_FEEDBACK_H_INCLUDED
```

2.15 doc_fields.h File Reference

Classes of Smart Document Engine fields representation.

Classes

- class se::doc::DocBaseFieldInfo

  The class representing basic document field information.
- class se::doc::DocTextField

  The class representing a text field of a document.
- class se::doc::DocImageField

  The class representing an image field of a document.

- class se::doc::DocCheckboxField

  The class representing a checkbox field of a document.
- class se::doc::DocForensicField

  The class representing a forensic field of a document.
- class se::doc::DocForensicCheckField

  The class representing a forensic check field of a document.
- class se::doc::DocTableField

  The class representing a table field of a document.
- class se::doc::DocBarcodeField

  The class representing a barcode field of a document.

2.15.1 Detailed Description

Classes of Smart Document Engine fields representation.

Definition in file doc_fields.h.

2.16 doc_fields.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_FIELDS_H_INCLUDED
00012 #define DOCENGINE_DOC_FIELDS_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015
00016 #include <docengine/doc_forward_declarations.h>
00017 #include <docengine/doc_basic_objects_iterator.h>
00018 #include <docengine/doc_physical_document.h>
00019 #include <docengine/doc_physical_document_iterators.h>
00020
00021
00022 namespace se { namespace doc {
00023
00024
00028 class SE_DLL_EXPORT DocBaseFieldInfo {
00029 public:
00031   virtual ~DocBaseFieldInfo() = default;
00032
00034   virtual const char* GetName() const = 0;
00036   virtual void SetName(const char* name) = 0;
00037
00039   virtual double GetConfidence() const = 0;
00041   virtual void SetConfidence(double conf) = 0;
00042
00044   virtual bool GetAcceptFlag() const = 0;
00046   virtual void SetAcceptFlag(bool is_accepted) = 0;
00047
00049   virtual int GetAttributesCount() const = 0;
00051   virtual bool HasAttribute(const char* attr_name) const = 0;
00053   virtual const char* GetAttribute(const char* attr_name) const = 0;
00055   virtual void SetAttribute(const char* attr_name, const char* attr_value) = 0;
00057   virtual void RemoveAttribute(const char* attr_name) = 0;
00059   virtual se::common::StringsMapIterator AttributesBegin() const = 0;
00061   virtual se::common::StringsMapIterator AttributesEnd() const = 0;
00062
00064   virtual void ConnectBasicObject(int coll_id, int obj_id) = 0;
00065
00067   virtual DocBasicObjectsCrossSliceIterator ConnectedBasicObjectsBegin(
00068       const DocGraphicalStructure& graphical) const = 0;
00070   virtual DocBasicObjectsCrossSliceIterator ConnectedBasicObjectsEnd(
00071       const DocGraphicalStructure& graphical) const = 0;
00072
00074   virtual DocBasicObjectsMutableCrossSliceIterator
00075   MutableConnectedBasicObjectsBegin(DocGraphicalStructure& graphical) = 0;
00077   virtual DocBasicObjectsMutableCrossSliceIterator
```

```
00078   MutableConnectedBasicObjectsEnd(DocGraphicalStructure& graphical) = 0;
00079
00081   virtual void ConnectTextObject(int page_id, int obj_id) = 0;
00082
00084   virtual void ConnectTableObject(int page_id, int obj_id) = 0;
00085
00086   virtual void ConnectImageObject(int page_id, int obj_id) = 0;
00087
00089   virtual DocBasicObjectsCrossPageIterator ConnectedTextObjectsBegin(
00090       const DocPhysicalDocument& phys_doc) const = 0;
00092   virtual DocBasicObjectsCrossPageIterator ConnectedTextObjectsEnd(
00093       const DocPhysicalDocument& phys_doc) const = 0;
00094
00096   virtual DocBasicObjectsCrossPageIterator ConnectedTableObjectsBegin(
00097       const DocPhysicalDocument& phys_doc) const = 0;
00099   virtual DocBasicObjectsCrossPageIterator ConnectedTableObjectsEnd(
00100       const DocPhysicalDocument& phys_doc) const = 0;
00101
00102
00104   virtual DocBasicObjectsMutableCrossPageIterator
00105   MutableConnectedTextObjectsBegin(DocPhysicalDocument& phys_doc) = 0;
00107   virtual DocBasicObjectsMutableCrossPageIterator
00108   MutableConnectedTextObjectsEnd(DocPhysicalDocument& phys_doc) = 0;
00109
00111   virtual DocBasicObjectsMutableCrossPageIterator
00112   MutableConnectedTableObjectsBegin(DocPhysicalDocument& phys_doc) = 0;
00114   virtual DocBasicObjectsMutableCrossPageIterator
00115   MutableConnectedTableObjectsEnd(DocPhysicalDocument& phys_doc) = 0;
00116
00118   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00119 };
00120
00121
00125 class SE_DLL_EXPORT DocTextField {
00126 public:
00128   virtual ~DocTextField() = default;
00129
00131   virtual const DocBaseFieldInfo& GetBaseFieldInfo() const = 0;
00133   virtual DocBaseFieldInfo& GetMutableBaseFieldInfo() = 0;
00135   virtual const DocBaseFieldInfo* GetBaseFieldInfoPtr() const = 0;
00137   virtual DocBaseFieldInfo* GetMutableBaseFieldInfoPtr() = 0;
00138
00140   virtual const se::common::OcrString& GetOcrString() const = 0;
00142   virtual se::common::OcrString& GetMutableOcrString() = 0;
00144   virtual const se::common::OcrString* GetOcrStringPtr() const = 0;
00146   virtual se::common::OcrString* GetMutableOcrStringPtr() = 0;
00148   virtual void SetOcrString(const se::common::OcrString& ocrstring) = 0;
00149
00151   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00152 };
00153
00154
00158 class SE_DLL_EXPORT DocImageField {
00159 public:
00161   virtual ~DocImageField() = default;
00162
00164   virtual const DocBaseFieldInfo& GetBaseFieldInfo() const = 0;
00166   virtual DocBaseFieldInfo& GetMutableBaseFieldInfo() = 0;
00168   virtual const DocBaseFieldInfo* GetBaseFieldInfoPtr() const = 0;
00170   virtual DocBaseFieldInfo* GetMutableBaseFieldInfoPtr() = 0;
00171
00173   virtual const se::common::Image& GetImage() const = 0;
00175   virtual se::common::Image& GetMutableImage() = 0;
00177   virtual const se::common::Image* GetImagePtr() const = 0;
00179   virtual se::common::Image* GetMutableImagePtr() = 0;
00181   virtual void SetImage(const se::common::Image& image) = 0;
00182
00184   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00185 };
00186
00187
00191 class SE_DLL_EXPORT DocCheckboxField {
00192 public:
00194   virtual ~DocCheckboxField() = default;
00195
00197   virtual const DocBaseFieldInfo& GetBaseFieldInfo() const = 0;
00199   virtual DocBaseFieldInfo& GetMutableBaseFieldInfo() = 0;
00201   virtual const DocBaseFieldInfo* GetBaseFieldInfoPtr() const = 0;
00203   virtual DocBaseFieldInfo* GetMutableBaseFieldInfoPtr() = 0;
00204
00206   virtual bool GetTickStatus() const = 0;
00208   virtual void SetTickStatus(bool tick_status) = 0;
00209
00211   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00212 };
00213
00214
```

```
00218 class SE_DLL_EXPORT DocForensicField {
00219 public:
00221   virtual ~DocForensicField() = default;
00222
00224   virtual const DocBaseFieldInfo& GetBaseFieldInfo() const = 0;
00226   virtual DocBaseFieldInfo& GetMutableBaseFieldInfo() = 0;
00228   virtual const DocBaseFieldInfo* GetBaseFieldInfoPtr() const = 0;
00230   virtual DocBaseFieldInfo* GetMutableBaseFieldInfoPtr() = 0;
00231
00233   virtual const char* GetStatus() const = 0;
00235   virtual void SetStatus(const char* status) = 0;
00236
00238   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00239 };
00240
00244 class SE_DLL_EXPORT DocForensicCheckField {
00245 public:
00247   virtual ~DocForensicCheckField() = default;
00248
00250   virtual const DocBaseFieldInfo& GetBaseFieldInfo() const = 0;
00252   virtual DocBaseFieldInfo& GetMutableBaseFieldInfo() = 0;
00254   virtual const DocBaseFieldInfo* GetBaseFieldInfoPtr() const = 0;
00256   virtual DocBaseFieldInfo* GetMutableBaseFieldInfoPtr() = 0;
00257
00259   virtual const char* GetStatus() const = 0;
00261   virtual void SetStatus(const char* status) = 0;
00262
00264   virtual int GetAttributesCount() const = 0;
00266   virtual se::common::StringsMapIterator AttributesBegin() const = 0;
00268   virtual se::common::StringsMapIterator AttributesEnd() const = 0;
00269
00271   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00272 };
00273
00274
00278 class SE_DLL_EXPORT DocTableField {
00279 public:
00281   virtual ~DocTableField() = default;
00282
00284   virtual const DocBaseFieldInfo& GetBaseFieldInfo() const = 0;
00286   virtual DocBaseFieldInfo& GetMutableBaseFieldInfo() = 0;
00288   virtual const DocBaseFieldInfo* GetBaseFieldInfoPtr() const = 0;
00290   virtual DocBaseFieldInfo* GetMutableBaseFieldInfoPtr() = 0;
00291
00293   virtual int GetRowsCount() const = 0;
00295   virtual int GetColsCount() const = 0;
00297   virtual const DocTextField& GetCell(int row, int col) const = 0;
00299   virtual DocTextField& GetMutableCell(int row, int col) = 0;
00301   virtual const DocTextField* GetCellPtr(int row, int col) const = 0;
00303   virtual DocTextField* GetMutableCellPtr(int row, int col) = 0;
00305   virtual void SetCell(int row, int col, const DocTextField& text_field) = 0;
00306
00308   virtual void ResizeRows(int rows) = 0;
00310   virtual void ResizeRows(int rows, const DocTextField& filler) = 0;
00312   virtual void ResizeCols(int cols) = 0;
00314   virtual void ResizeCols(int cols, const DocTextField& filler) = 0;
00315
00317   virtual const char* GetColName(int col) const = 0;
00319   virtual void SetColName(int col, const char* col_name) = 0;
00320
00322   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00323 };
00324
00325
00329 class SE_DLL_EXPORT DocBarcodeField {
00330 public:
00332   virtual ~DocBarcodeField() = default;
00333
00335   virtual const DocBaseFieldInfo& GetBaseFieldInfo() const = 0;
00337   virtual DocBaseFieldInfo& GetMutableBaseFieldInfo() = 0;
00339   virtual const DocBaseFieldInfo* GetBaseFieldInfoPtr() const = 0;
00341   virtual DocBaseFieldInfo* GetMutableBaseFieldInfoPtr() = 0;
00342
00344   virtual const se::common::MutableString& GetDecodedString() const = 0;
00346   virtual se::common::MutableString& GetMutableDecodedString() = 0;
00348   virtual const se::common::MutableString* GetDecodedStringPtr() const = 0;
00350   virtual se::common::MutableString* GetMutableDecodedStringPtr() = 0;
00352   virtual void SetDecodedString(const se::common::MutableString& decstring) = 0;
00353
00355   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00356 };
00357
00358
00359 } } // namespace se::doc
00360
00361 #endif // DOCENGINE_DOC_FIELDS_H_INCLUDED
```

2.17 doc_fields_iterators.h File Reference

Classes of Smart Document Engine fields iterators.

Classes

- class se::doc::DocTextFieldsIterator

  Const-ref iterator for a collection of text fields.
- class se::doc::DocImageFieldsIterator

  Const-ref iterator for a collection of image fields.
- class se::doc::DocCheckboxFieldsIterator

  Const-ref iterator for a collection of checkbox fields.
- class se::doc::DocForensicFieldsIterator

  Const-ref iterator for a collection of forensic fields.
- class se::doc::DocForensicCheckFieldsIterator

  Const-ref iterator for a collection of forensic check fields.
- class se::doc::DocTableFieldsIterator

  Const-ref iterator for a collection of table fields.
- class se::doc::DocBarcodeFieldsIterator

  Const-ref iterator for a collection of barcode fields.

2.17.1 Detailed Description

Classes of Smart Document Engine fields iterators.

Definition in file doc_fields_iterators.h.

2.18 doc_fields_iterators.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_FIELDS_ITERATORS_H_INCLUDED
00012 #define DOCENGINE_DOC_FIELDS_ITERATORS_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015 #include <docengine/doc_forward_declarations.h>
00016
00017 namespace se { namespace doc {
00018
00021 class DocTextFieldsIteratorImpl;
00022
00026 class SE_DLL_EXPORT DocTextFieldsIterator {
00027 private:
00029   DocTextFieldsIterator(const DocTextFieldsIteratorImpl& pimpl);
00030
00031 public:
00033   DocTextFieldsIterator(const DocTextFieldsIterator& other);
00035   DocTextFieldsIterator& operator =(const DocTextFieldsIterator& other);
00037   ~DocTextFieldsIterator();
00038
00040   static DocTextFieldsIterator ConstructFromImpl(
00041       const DocTextFieldsIteratorImpl& pimpl);
00042
00044   const char* GetKey() const;
00046   const DocTextField& GetField() const;
00048   const DocTextField* GetFieldPtr() const;
00050   void Advance();
```

```
00052   void operator ++();
00053
00055   bool Equals(const DocTextFieldsIterator& rvalue) const;
00057   bool operator ==(const DocTextFieldsIterator& rvalue) const;
00059   bool operator !=(const DocTextFieldsIterator& rvalue) const;
00060
00061 private:
00063   class DocTextFieldsIteratorImpl* pimpl_;
00064 };
00065
00066
00069 class DocImageFieldsIteratorImpl;
00070
00074 class SE_DLL_EXPORT DocImageFieldsIterator {
00075 private:
00077   DocImageFieldsIterator(const DocImageFieldsIteratorImpl& pimpl);
00078
00079 public:
00081   DocImageFieldsIterator(const DocImageFieldsIterator& other);
00083   DocImageFieldsIterator& operator =(const DocImageFieldsIterator& other);
00085   ~DocImageFieldsIterator();
00086
00088   static DocImageFieldsIterator ConstructFromImpl(
00089       const DocImageFieldsIteratorImpl& pimpl);
00090
00092   const char* GetKey() const;
00094   const DocImageField& GetField() const;
00096   const DocImageField* GetFieldPtr() const;
00098   void Advance();
00100   void operator ++();
00101
00103   bool Equals(const DocImageFieldsIterator& rvalue) const;
00105   bool operator ==(const DocImageFieldsIterator& rvalue) const;
00107   bool operator !=(const DocImageFieldsIterator& rvalue) const;
00108
00109 private:
00111   class DocImageFieldsIteratorImpl* pimpl_;
00112 };
00113
00114
00117 class DocCheckboxFieldsIteratorImpl;
00118
00122 class SE_DLL_EXPORT DocCheckboxFieldsIterator {
00123 private:
00125   DocCheckboxFieldsIterator(const DocCheckboxFieldsIteratorImpl& pimpl);
00126
00127 public:
00129   DocCheckboxFieldsIterator(const DocCheckboxFieldsIterator& other);
00131   DocCheckboxFieldsIterator& operator =(const DocCheckboxFieldsIterator& other);
00133   ~DocCheckboxFieldsIterator();
00134
00136   static DocCheckboxFieldsIterator ConstructFromImpl(
00137       const DocCheckboxFieldsIteratorImpl& pimpl);
00138
00140   const char* GetKey() const;
00142   const DocCheckboxField& GetField() const;
00144   const DocCheckboxField* GetFieldPtr() const;
00146   void Advance();
00148   void operator ++();
00149
00151   bool Equals(const DocCheckboxFieldsIterator& rvalue) const;
00153   bool operator ==(const DocCheckboxFieldsIterator& rvalue) const;
00155   bool operator !=(const DocCheckboxFieldsIterator& rvalue) const;
00156
00157 private:
00159   class DocCheckboxFieldsIteratorImpl* pimpl_;
00160 };
00161
00162
00165 class DocForensicFieldsIteratorImpl;
00166
00170 class SE_DLL_EXPORT DocForensicFieldsIterator {
00171 private:
00173   DocForensicFieldsIterator(const DocForensicFieldsIteratorImpl& pimpl);
00174
00175 public:
00177   DocForensicFieldsIterator(const DocForensicFieldsIterator& other);
00179   DocForensicFieldsIterator& operator =(const DocForensicFieldsIterator& other);
00181   ~DocForensicFieldsIterator();
00182
00184   static DocForensicFieldsIterator ConstructFromImpl(
00185       const DocForensicFieldsIteratorImpl& pimpl);
00186
00188   const char* GetKey() const;
00190   const DocForensicField& GetField() const;
00192   const DocForensicField* GetFieldPtr() const;
00194   void Advance();
```

```
00196   void operator ++();
00197
00199   bool Equals(const DocForensicFieldsIterator& rvalue) const;
00201   bool operator ==(const DocForensicFieldsIterator& rvalue) const;
00203   bool operator !=(const DocForensicFieldsIterator& rvalue) const;
00204
00205 private:
00207   class DocForensicFieldsIteratorImpl* pimpl_;
00208 };
00209
00212 class DocForensicCheckFieldsIteratorImpl;
00213
00217 class SE_DLL_EXPORT DocForensicCheckFieldsIterator {
00218 private:
00220   DocForensicCheckFieldsIterator(const DocForensicCheckFieldsIteratorImpl& pimpl);
00221
00222 public:
00224   DocForensicCheckFieldsIterator(const DocForensicCheckFieldsIterator& other);
00226   DocForensicCheckFieldsIterator& operator =(const DocForensicCheckFieldsIterator& other);
00228   ~DocForensicCheckFieldsIterator();
00229
00231   static DocForensicCheckFieldsIterator ConstructFromImpl(
00232       const DocForensicCheckFieldsIteratorImpl& pimpl);
00233
00235   const char* GetKey() const;
00237   const DocForensicCheckField& GetField() const;
00239   const DocForensicCheckField* GetFieldPtr() const;
00241   void Advance();
00243   void operator ++();
00244
00246   bool Equals(const DocForensicCheckFieldsIterator& rvalue) const;
00248   bool operator ==(const DocForensicCheckFieldsIterator& rvalue) const;
00250   bool operator !=(const DocForensicCheckFieldsIterator& rvalue) const;
00251
00252 private:
00254   class DocForensicCheckFieldsIteratorImpl* pimpl_;
00255 };
00256
00257
00260 class DocTableFieldsIteratorImpl;
00261
00265 class SE_DLL_EXPORT DocTableFieldsIterator {
00266 private:
00268   DocTableFieldsIterator(const DocTableFieldsIteratorImpl& pimpl);
00269
00270 public:
00272   DocTableFieldsIterator(const DocTableFieldsIterator& other);
00274   DocTableFieldsIterator& operator =(const DocTableFieldsIterator& other);
00276   ~DocTableFieldsIterator();
00277
00279   static DocTableFieldsIterator ConstructFromImpl(
00280       const DocTableFieldsIteratorImpl& pimpl);
00281
00283   const char* GetKey() const;
00285   const DocTableField& GetField() const;
00287   const DocTableField* GetFieldPtr() const;
00289   void Advance();
00291   void operator ++();
00292
00294   bool Equals(const DocTableFieldsIterator& rvalue) const;
00296   bool operator ==(const DocTableFieldsIterator& rvalue) const;
00298   bool operator !=(const DocTableFieldsIterator& rvalue) const;
00299
00300 private:
00302   class DocTableFieldsIteratorImpl* pimpl_;
00303 };
00304
00305
00308 class DocBarcodeFieldsIteratorImpl;
00309
00313 class SE_DLL_EXPORT DocBarcodeFieldsIterator {
00314 private:
00316   DocBarcodeFieldsIterator(const DocBarcodeFieldsIteratorImpl& pimpl);
00317
00318 public:
00320   DocBarcodeFieldsIterator(const DocBarcodeFieldsIterator& other);
00322   DocBarcodeFieldsIterator& operator =(const DocBarcodeFieldsIterator& other);
00324   ~DocBarcodeFieldsIterator();
00325
00327   static DocBarcodeFieldsIterator ConstructFromImpl(
00328       const DocBarcodeFieldsIteratorImpl& pimpl);
00329
00331   const char* GetKey() const;
00333   const DocBarcodeField& GetField() const;
00335   const DocBarcodeField* GetFieldPtr() const;
00337   void Advance();
00339   void operator ++();
```

```
00340
00342   bool Equals(const DocBarcodeFieldsIterator& rvalue) const;
00344   bool operator ==(const DocBarcodeFieldsIterator& rvalue) const;
00346   bool operator !=(const DocBarcodeFieldsIterator& rvalue) const;
00347
00348 private:
00350   class DocBarcodeFieldsIteratorImpl* pimpl_;
00351 };
00352
00353 } } // namespace se::doc
00354
00355 #endif // DOCENGINE_DOC_FIELDS_ITERATORS_H_INCLUDED
```

2.19 doc_forward_declarations.h File Reference

Forward declarations for Smart Document Engine classes.

Variables

- class SE_DLL_EXPORT se::doc::DocTagsCollection
- class SE_DLL_EXPORT se::doc::DocView
- class SE_DLL_EXPORT se::doc::DocViewsCollection
- class SE_DLL_EXPORT se::doc::DocBaseObjectInfo
- class SE_DLL_EXPORT se::doc::DocBasicObject
- class SE_DLL_EXPORT se::doc::DocObjectsCollection
- class SE_DLL_EXPORT se::doc::DocGraphicalStructure
- class SE_DLL_EXPORT se::doc::DocTemplateObject
- class SE_DLL_EXPORT se::doc::DocTextObject
- class SE_DLL_EXPORT se::doc::DocMultiStringTextObjectImpl
- class SE_DLL_EXPORT se::doc::DocZoneObject
- class SE_DLL_EXPORT se::doc::DocCheckboxObject
- class SE_DLL_EXPORT se::doc::DocLineObject
- class SE_DLL_EXPORT se::doc::DocTableObject
- class SE_DLL_EXPORT se::doc::DocMetaObject
- class SE_DLL_EXPORT se::doc::DocBarcodeObject
- class SE_DLL_EXPORT se::doc::DocMarkObject
- class SE_DLL_EXPORT se::doc::DocTextField
- class SE_DLL_EXPORT se::doc::DocImageField
- class SE_DLL_EXPORT se::doc::DocCheckboxField
- class SE_DLL_EXPORT se::doc::DocForensicField
- class SE_DLL_EXPORT se::doc::DocForensicCheckField
- class SE_DLL_EXPORT se::doc::DocTableField
- class SE_DLL_EXPORT se::doc::DocBarcodeField
- class SE_DLL_EXPORT se::doc::Document
- class SE_DLL_EXPORT se::doc::DocResult
- class SE_DLL_EXPORT se::doc::DocSessionSettings
- class SE_DLL_EXPORT se::doc::DocSession
- class SE_DLL_EXPORT se::doc::DocVideoSession
- class SE_DLL_EXPORT se::doc::DocProcessingSettings
- class SE_DLL_EXPORT se::doc::DocFeedback
- class SE_DLL_EXPORT se::doc::DocProcessingArguments
- class SE_DLL_EXPORT se::doc::DocExternalProcessorInterface
- class SE_DLL_EXPORT se::doc::DocDocumentFieldInfo

2.19.1 Detailed Description

Forward declarations for Smart Document Engine classes.

Definition in file doc_forward_declarations.h.

2.19.2 Variable Documentation

DocTagsCollection

```
class SE_DLL_EXPORT se::doc::DocTagsCollection
```

Definition at line 18 of file doc_forward_declarations.h.

DocView

```
class SE_DLL_EXPORT se::doc::DocView
```

Definition at line 20 of file doc_forward_declarations.h.

DocViewsCollection

```
class SE_DLL_EXPORT se::doc::DocViewsCollection
```

Definition at line 21 of file doc_forward_declarations.h.

DocBaseObjectInfo

```
class SE_DLL_EXPORT se::doc::DocBaseObjectInfo
```

Definition at line 22 of file doc_forward_declarations.h.

DocBasicObject

```
class SE_DLL_EXPORT se::doc::DocBasicObject
```

Definition at line 23 of file doc_forward_declarations.h.

DocObjectsCollection

```
class SE_DLL_EXPORT se::doc::DocObjectsCollection
```

Definition at line 24 of file doc_forward_declarations.h.

DocGraphicalStructure

```
class SE_DLL_EXPORT se::doc::DocGraphicalStructure
```

Definition at line 25 of file doc_forward_declarations.h.

DocTemplateObject

```
class SE_DLL_EXPORT se::doc::DocTemplateObject
```

Definition at line 27 of file doc_forward_declarations.h.

DocTextObject

```
class SE_DLL_EXPORT se::doc::DocTextObject
```

Definition at line 28 of file doc_forward_declarations.h.

DocMultiStringTextObjectImpl

```
class SE_DLL_EXPORT se::doc::DocMultiStringTextObjectImpl
```

Definition at line 29 of file doc_forward_declarations.h.

DocZoneObject

```
class SE_DLL_EXPORT se::doc::DocZoneObject
```

Definition at line 30 of file doc_forward_declarations.h.

DocCheckboxObject

```
class SE_DLL_EXPORT se::doc::DocCheckboxObject
```

Definition at line 31 of file doc_forward_declarations.h.

DocLineObject

```
class SE_DLL_EXPORT se::doc::DocLineObject
```

Definition at line 32 of file doc_forward_declarations.h.

DocTableObject

```
class SE_DLL_EXPORT se::doc::DocTableObject
```

Definition at line 33 of file doc_forward_declarations.h.

DocMetaObject

```
class SE_DLL_EXPORT se::doc::DocMetaObject
```

Definition at line 34 of file doc_forward_declarations.h.

DocBarcodeObject

```
class SE_DLL_EXPORT se::doc::DocBarcodeObject
```

Definition at line 35 of file doc_forward_declarations.h.

DocMarkObject

```
class SE_DLL_EXPORT se::doc::DocMarkObject
```

Definition at line 36 of file doc_forward_declarations.h.

DocTextField

```
class SE_DLL_EXPORT se::doc::DocTextField
```

Definition at line 38 of file doc_forward_declarations.h.

DocImageField

```
class SE_DLL_EXPORT se::doc::DocImageField
```

Definition at line 39 of file doc_forward_declarations.h.

DocCheckboxField

```
class SE_DLL_EXPORT se::doc::DocCheckboxField
```

Definition at line 40 of file doc_forward_declarations.h.

DocForensicField

```
class SE_DLL_EXPORT se::doc::DocForensicField
```

Definition at line 41 of file doc_forward_declarations.h.

DocForensicCheckField

```
class SE_DLL_EXPORT se::doc::DocForensicCheckField
```

Definition at line 42 of file doc_forward_declarations.h.

DocTableField

```
class SE_DLL_EXPORT se::doc::DocTableField
```

Definition at line 43 of file doc_forward_declarations.h.

DocBarcodeField

```
class SE_DLL_EXPORT se::doc::DocBarcodeField
```

Definition at line 44 of file doc_forward_declarations.h.

Document

```
class SE_DLL_EXPORT se::doc::Document
```

Definition at line 45 of file doc_forward_declarations.h.

DocResult

```
class SE_DLL_EXPORT se::doc::DocResult
```

Definition at line 47 of file doc_forward_declarations.h.

DocSessionSettings

```
class SE_DLL_EXPORT se::doc::DocSessionSettings
```

Definition at line 49 of file doc_forward_declarations.h.

DocSession

```
class SE_DLL_EXPORT se::doc::DocSession
```

Definition at line 50 of file doc_forward_declarations.h.

DocVideoSession

```
class SE_DLL_EXPORT se::doc::DocVideoSession
```

Definition at line 51 of file doc_forward_declarations.h.

DocProcessingSettings

```
class SE_DLL_EXPORT se::doc::DocProcessingSettings
```

Definition at line 52 of file doc_forward_declarations.h.

DocFeedback

```
class SE_DLL_EXPORT se::doc::DocFeedback
```

Definition at line 53 of file doc_forward_declarations.h.

DocProcessingArguments

```
class SE_DLL_EXPORT se::doc::DocProcessingArguments
```

Definition at line 54 of file doc_forward_declarations.h.

DocExternalProcessorInterface

```
class SE_DLL_EXPORT se::doc::DocExternalProcessorInterface
```

Definition at line 55 of file doc_forward_declarations.h.

DocDocumentFieldInfo

```
class SE_DLL_EXPORT se::doc::DocDocumentFieldInfo
```

Definition at line 57 of file doc_forward_declarations.h.

2.20 doc_forward_declarations.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_FORWARD_DECLARATIONS_H_INCLUDED
00012 #define DOCENGINE_DOC_FORWARD_DECLARATIONS_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015
00016 namespace se { namespace doc {
00017
00018 class SE_DLL_EXPORT DocTagsCollection;
00019
00020 class SE_DLL_EXPORT DocView;
00021 class SE_DLL_EXPORT DocViewsCollection;
00022 class SE_DLL_EXPORT DocBaseObjectInfo;
00023 class SE_DLL_EXPORT DocBasicObject;
00024 class SE_DLL_EXPORT DocObjectsCollection;
00025 class SE_DLL_EXPORT DocGraphicalStructure;
00026
00027 class SE_DLL_EXPORT DocTemplateObject;
00028 class SE_DLL_EXPORT DocTextObject;
00029 class SE_DLL_EXPORT DocMultiStringTextObjectImpl;
00030 class SE_DLL_EXPORT DocZoneObject;
00031 class SE_DLL_EXPORT DocCheckboxObject;
00032 class SE_DLL_EXPORT DocLineObject;
00033 class SE_DLL_EXPORT DocTableObject;
00034 class SE_DLL_EXPORT DocMetaObject;
00035 class SE_DLL_EXPORT DocBarcodeObject;
00036 class SE_DLL_EXPORT DocMarkObject;
00037
00038 class SE_DLL_EXPORT DocTextField;
00039 class SE_DLL_EXPORT DocImageField;
00040 class SE_DLL_EXPORT DocCheckboxField;
00041 class SE_DLL_EXPORT DocForensicField;
```

```
00042 class SE_DLL_EXPORT DocForensicCheckField;
00043 class SE_DLL_EXPORT DocTableField;
00044 class SE_DLL_EXPORT DocBarcodeField;
00045 class SE_DLL_EXPORT Document;
00046
00047 class SE_DLL_EXPORT DocResult;
00048
00049 class SE_DLL_EXPORT DocSessionSettings;
00050 class SE_DLL_EXPORT DocSession;
00051 class SE_DLL_EXPORT DocVideoSession;
00052 class SE_DLL_EXPORT DocProcessingSettings;
00053 class SE_DLL_EXPORT DocFeedback;
00054 class SE_DLL_EXPORT DocProcessingArguments;
00055 class SE_DLL_EXPORT DocExternalProcessorInterface;
00056
00057 class SE_DLL_EXPORT DocDocumentFieldInfo;
00058
00059 } } // namespace se::doc
00060
00061 #endif // DOCENGINE_DOC_FORWARD_DECLARATIONS_H_INCLUDED
```

2.21 doc_graphical_structure.h File Reference

Classes of Smart Document Engine graphical result structure.

Classes

- class se::doc::DocGraphicalStructure

  The class represting a graphical structure - a result of graphical document processing and graphical objects extraction.

2.21.1 Detailed Description

Classes of Smart Document Engine graphical result structure.

Definition in file doc_graphical_structure.h.

2.22 doc_graphical_structure.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_GRAPHICAL_STRUCTURE_H_INCLUDED
00012 #define DOCENGINE_DOC_GRAPHICAL_STRUCTURE_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_forward_declarations.h>
00016 #include <docengine/doc_objects_collections_iterator.h>
00017
00018 namespace se { namespace doc {
00019
00020
00025 class SE_DLL_EXPORT DocGraphicalStructure {
00026 public:
00028   virtual ~DocGraphicalStructure() = default;
00029
00031   virtual int GetCollectionsCount() const = 0;
00033   virtual bool HasCollection(int c_id) const = 0;
00035   virtual const DocObjectsCollection& GetCollection(int c_id) const = 0;
00037   virtual DocObjectsCollection& GetMutableCollection(int c_id) = 0;
00039   virtual const DocTagsCollection& GetCollectionTags(int c_id) const = 0;
00041   virtual const DocObjectsCollection* GetCollectionPtr(int c_id) const = 0;
00043   virtual DocObjectsCollection* GetMutableCollectionPtr(int c_id) = 0;
00045   virtual const DocTagsCollection* GetCollectionTagsPtr(int c_id) const = 0;
00047   virtual DocObjectsCollectionsMutableIterator AddCollection(
```

```
00048       const DocObjectsCollection& collection) = 0;
00050   virtual DocObjectsCollectionsMutableIterator AddCollection(
00051       const DocObjectsCollection& collection,
00052       const DocTagsCollection& tags) = 0;
00054   virtual void SetCollection(
00055       int c_id, const DocObjectsCollection& collection) = 0;
00057   virtual void RemoveCollection(int c_id) = 0;
00058
00060   virtual DocObjectsCollectionsIterator ObjectsCollectionsBegin() const = 0;
00062   virtual DocObjectsCollectionsIterator ObjectsCollectionsEnd() const = 0;
00063
00065   virtual DocObjectsCollectionsMutableIterator
00066   MutableObjectsCollectionsBegin() = 0;
00068   virtual DocObjectsCollectionsMutableIterator
00069   MutableObjectsCollectionsEnd() = 0;
00070
00073   virtual DocObjectsCollectionsSliceIterator ObjectsCollectionsSlice(
00074       const char* tag) const = 0;
00075
00078   virtual DocObjectsCollectionsMutableSliceIterator MutableObjectsCollectionsSlice(
00079       const char* tag) = 0;
00080
00082   virtual const DocViewsCollection& GetViewsCollection() const = 0;
00084   virtual DocViewsCollection& GetMutableViewsCollection() = 0;
00086   virtual const DocViewsCollection* GetViewsCollectionPtr() const = 0;
00088   virtual DocViewsCollection* GetMutableViewsCollectionPtr() = 0;
00089
00091   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00092 };
00093
00094
00095 } } // namespace se::doc
00096
00097 #endif // DOCENGINE_DOC_GRAPHICAL_STRUCTURE_H_INCLUDED
```

2.23 doc_objects.h File Reference

Types of graphical structure objects of Smart Document Engine.

Classes

- class se::doc::DocTextObject

  The graphical object representing a text line.
- class se::doc::DocCheckboxObject

  The graphical object representing a checkbox.
- class se::doc::DocTemplateObject

  The graphical object representing a fixed subform template.
- class se::doc::DocLineObject

  The graphical object representing a straight line segment.
- class se::doc::DocZoneObject

  The graphical object representing a localized document zone.
- class se::doc::DocMultiStringTextObject

  The graphical object representing a text object with multiple lines.
- class se::doc::DocMetaObject

  The graphical object representing a meta object.
- class se::doc::DocTableObject

  The graphical object representing a table.
- class se::doc::DocImageObject

  The graphical object representing an image region of a document.
- class se::doc::DocBarcodeObject

  The graphical object representing a barcode.
- class se::doc::DocMarkObject

  The graphical object representing a remark or correction on a document.

2.23.1 Detailed Description

Types of graphical structure objects of Smart Document Engine.

Definition in file doc_objects.h.

2.24 doc_objects.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_OBJECTS_H_INCLUDED
00012 #define DOCENGINE_DOC_OBJECTS_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_forward_declarations.h>
00016 #include <docengine/doc_basic_object.h>
00017
00018 namespace se { namespace doc {
00019
00020
00024 class SE_DLL_EXPORT DocTextObject : public DocBasicObject {
00025 public:
00027   virtual ~DocTextObject() override = default;
00028
00030   static const char* ObjectTypeStatic();
00031
00033   virtual const se::common::OcrString& GetOcrString() const = 0;
00035   virtual se::common::OcrString& GetMutableOcrString() = 0;
00037   virtual const se::common::OcrString* GetOcrStringPtr() const = 0;
00039   virtual se::common::OcrString* GetMutableOcrStringPtr() = 0;
00041   virtual void SetOcrString(const se::common::OcrString& ocrstring) = 0;
00042 };
00043
00044
00048 class SE_DLL_EXPORT DocCheckboxObject : public DocBasicObject {
00049 public:
00051   virtual ~DocCheckboxObject() override = default;
00052
00054   static const char* ObjectTypeStatic();
00055
00057   virtual const se::common::OcrString& GetOcrString() const = 0;
00059   virtual se::common::OcrString& GetMutableOcrString() = 0;
00061   virtual const se::common::OcrString* GetOcrStringPtr() const = 0;
00063   virtual se::common::OcrString* GetMutableOcrStringPtr() = 0;
00065   virtual void SetOcrString(const se::common::OcrString& ocrstring) = 0;
00066 };
00067
00068
00072 class SE_DLL_EXPORT DocTemplateObject : public DocBasicObject {
00073 public:
00075   virtual ~DocTemplateObject() override = default;
00076
00078   static const char* ObjectTypeStatic();
00079 };
00080
00081
00085 class SE_DLL_EXPORT DocLineObject : public DocBasicObject {
00086 public:
00088   virtual ~DocLineObject() override = default;
00089
00091   static const char* ObjectTypeStatic();
00092 };
00093
00094
00098 class SE_DLL_EXPORT DocZoneObject : public DocBasicObject {
00099 public:
00101   virtual ~DocZoneObject() override = default;
00102
00104   static const char* ObjectTypeStatic();
00105
00107   virtual const se::common::Size& GetSize() const = 0;
00109   virtual se::common::Size& GetMutableSize() = 0;
00111   virtual const se::common::Size* GetSizePtr() const = 0;
00113   virtual se::common::Size* GetMutableSizePtr() = 0;
00115   virtual void SetSize(const se::common::Size& size) = 0;
```

```
00116 };
00117
00118
00122 class SE_DLL_EXPORT DocMultiStringTextObject : public DocBasicObject {
00123 public:
00125   virtual ~DocMultiStringTextObject() override = default;
00126
00128   static const char* ObjectTypeStatic();
00129
00131   virtual int GetStringsCount() const = 0;
00133   virtual void SetStringsCount(int count) = 0;
00134
00136   virtual const DocTextObject& GetStringObject(int index) const = 0;
00138   virtual DocTextObject& GetMutableStringObject(int index) = 0;
00140   virtual const DocTextObject* GetStringObjectPtr(int index) const = 0;
00142   virtual DocTextObject* GetMutableStringObjectPtr(int index) = 0;
00144   virtual void SetStringObject(
00145       int index, const DocTextObject& text_object) = 0;
00146 };
00147
00148
00152 class SE_DLL_EXPORT DocMetaObject : public DocBasicObject {
00153 public:
00155   virtual ~DocMetaObject() override = default;
00156
00158   static const char* ObjectTypeStatic();
00159
00161   virtual const se::common::OcrString& GetOcrString() const = 0;
00163   virtual se::common::OcrString& GetMutableOcrString() = 0;
00165   virtual const se::common::OcrString* GetOcrStringPtr() const = 0;
00167   virtual se::common::OcrString* GetMutableOcrStringPtr() = 0;
00169   virtual void SetOcrString(const se::common::OcrString& ocrstring) = 0;
00170 };
00171
00172
00176 class SE_DLL_EXPORT DocTableObject : public DocBasicObject {
00177 public:
00179   virtual ~DocTableObject() override = default;
00180
00182   static const char* ObjectTypeStatic();
00183
00185   virtual int GetRowsCount() const = 0;
00186
00189   virtual int GetColsCount(int row) const = 0;
00191   virtual const DocMultiStringTextObject& GetCell(int row, int col) const = 0;
00193   virtual DocMultiStringTextObject& GetMutableCell(int row, int col) = 0;
00195   virtual const DocMultiStringTextObject* GetCellPtr(int row, int col) const = 0;
00197   virtual DocMultiStringTextObject* GetMutableCellPtr(int row, int col) = 0;
00199   virtual void SetCell(
00200       int row,
00201       int col,
00202       const DocMultiStringTextObject& multi_string_text_object) = 0;
00203
00205   virtual void ResizeRows(int rows) = 0;
00207   virtual void ResizeCols(int row, int cols) = 0;
00208
00210   virtual const char* GetColName(int col, int row) const = 0;
00213   virtual void SetColName(int col, int first_row, const char* col_name) = 0;
00214 };
00215
00216
00220 class SE_DLL_EXPORT DocImageObject : public DocBasicObject {
00221 public:
00223   virtual ~DocImageObject() override = default;
00224
00226   static const char* ObjectTypeStatic();
00227 };
00228
00229
00233 class SE_DLL_EXPORT DocBarcodeObject : public DocBasicObject {
00234 public:
00236   virtual ~DocBarcodeObject() override = default;
00237
00239   static const char* ObjectTypeStatic();
00240
00242   virtual const se::common::MutableString& GetDecodedString() const = 0;
00244   virtual se::common::MutableString& GetMutableDecodedString() = 0;
00246   virtual const se::common::MutableString* GetDecodedStringPtr() const = 0;
00248   virtual se::common::MutableString* GetMutableDecodedStringPtr() = 0;
00250   virtual void SetDecodedString(const se::common::MutableString& decstring) = 0;
00251 };
00252
00256 class SE_DLL_EXPORT DocMarkObject : public DocBasicObject {
00257 public:
00259   virtual ~DocMarkObject() override = default;
00260
00262   static const char* ObjectTypeStatic();
```

```
00263 };
00264
00265
00266 } } // namespace se::doc
00267
00268 #endif // DOCENGINE_DOC_OBJECTS_H_INCLUDED
```

2.25 doc_objects_collection.h File Reference

Collection of basic objects for Smart Document Engine.

Classes

- class se::doc::DocObjectsCollection

  The class representing a collection of graphical objects.

2.25.1 Detailed Description

Collection of basic objects for Smart Document Engine.

Definition in file doc_objects_collection.h.

2.26 doc_objects_collection.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_OBJECTS_COLLECTION_H_INCLUDED
00012 #define DOCENGINE_DOC_OBJECTS_COLLECTION_H_INCLUDED
00013
00014 #include <secommon/se_serialization.h>
00015 #include <secommon/se_export_defs.h>
00016
00017 #include <docengine/doc_forward_declarations.h>
00018 #include <docengine/doc_basic_objects_iterator.h>
00019
00020
00021 namespace se { namespace doc {
00022
00023
00027 class SE_DLL_EXPORT DocObjectsCollection {
00028 public:
00030   static const char* BaseClassNameStatic();
00031
00032 public:
00040   static DocObjectsCollection* Create(const char* object_type);
00041
00048   virtual DocBasicObject* CreateObject() const = 0;
00049
00050 public:
00052   virtual ~DocObjectsCollection() = default;
00053
00059   virtual DocObjectsCollection* Clone() const = 0;
00060
00062   virtual const char* ObjectType() const = 0;
00063
00065   virtual int GetFrameID() const = 0;
00067   virtual void SetFrameID(int frame_id) = 0;
00068
00070   virtual int GetObjectsCount() const = 0;
00072   virtual bool HasObject(int obj_id) const = 0;
00074   virtual const DocBasicObject& GetObject(int obj_id) const = 0;
00076   virtual DocBasicObject& GetMutableObject(int obj_id) = 0;
00078   virtual const DocBasicObject* GetObjectPtr(int obj_id) const = 0;
```

```
00080   virtual DocBasicObject* GetMutableObjectPtr(int obj_id) = 0;
00082   virtual const DocTagsCollection& GetObjectTags(int obj_id) const = 0;
00084   virtual const DocTagsCollection* GetObjectTagsPtr(int obj_id) const = 0;
00086   virtual DocBasicObjectsMutableIterator AddObject(
00087       const DocBasicObject& obj) = 0;
00089   virtual void SetObject(int obj_id, const DocBasicObject& obj) = 0;
00091   virtual void RemoveObject(int obj_id) = 0;
00094   virtual void RemoveObjectDeep(
00095       int              obj_id,
00096       DocViewsCollection& views_collection) = 0;
00097
00099   virtual DocBasicObjectsIterator BasicObjectsBegin() const = 0;
00101   virtual DocBasicObjectsIterator BasicObjectsEnd() const = 0;
00102
00104   virtual DocBasicObjectsMutableIterator MutableBasicObjectsBegin() = 0;
00106   virtual DocBasicObjectsMutableIterator MutableBasicObjectsEnd() = 0;
00107
00109   virtual DocBasicObjectsSliceIterator BasicObjectsSlice(
00110       const char* tag) const = 0;
00111
00113   virtual DocBasicObjectsMutableSliceIterator MutableBasicObjectsSlice(
00114       const char* tag) = 0;
00115
00117   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00118 };
00119
00120
00121 } } // namespace se::doc
00122
00123 #endif // DOCENGINE_DOC_OBJECTS_COLLECTION_H_INCLUDED
```

2.27 doc_objects_collections_iterator.h File Reference

Smart Document Engine basic graphical objects collections iterator.

Classes

- class se::doc::DocObjectsCollectionsIterator

  Basic const-ref iterator for graphical object collections.
- class se::doc::DocObjectsCollectionsMutableIterator

  Mutable-ref iterator for graphical object collections.
- class se::doc::DocObjectsCollectionsSliceIterator

  Const-ref iterator for graphical object collections with a given tag.
- class se::doc::DocObjectsCollectionsMutableSliceIterator

  Const-ref iterator for object collections with a given tag.

2.27.1 Detailed Description

Smart Document Engine basic graphical objects collections iterator.

Definition in file doc_objects_collections_iterator.h.

2.28 doc_objects_collections_iterator.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_OBJECTS_COLLECTIONS_ITERATOR_H_INCLUDED
00012 #define DOCENGINE_DOC_OBJECTS_COLLECTIONS_ITERATOR_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015 #include <docengine/doc_forward_declarations.h>
00016
00017 namespace se { namespace doc {
00018
00021 class DocObjectsCollectionsIteratorImpl;
00022
00026 class SE_DLL_EXPORT DocObjectsCollectionsIterator {
00027 private:
00029   DocObjectsCollectionsIterator(
00030       const DocObjectsCollectionsIteratorImpl& pimpl);
00031
00032 public:
00034   DocObjectsCollectionsIterator(const DocObjectsCollectionsIterator& other);
00036   DocObjectsCollectionsIterator& operator =(
00037       const DocObjectsCollectionsIterator& other);
00039   ~DocObjectsCollectionsIterator();
00040
00042   static DocObjectsCollectionsIterator ConstructFromImpl(
00043       const DocObjectsCollectionsIteratorImpl& pimpl);
00044
00046   int GetID() const;
00048   const DocObjectsCollection& GetObjectsCollection() const;
00050   const DocTagsCollection& GetTags() const;
00052   const DocObjectsCollection* GetObjectsCollectionPtr() const;
00054   const DocTagsCollection* GetTagsPtr() const;
00056   void Advance();
00057
00059   bool Equals(const DocObjectsCollectionsIterator& rvalue) const;
00061   bool operator ==(const DocObjectsCollectionsIterator& rvalue) const;
00063   bool operator !=(const DocObjectsCollectionsIterator& rvalue) const;
00064
00065 private:
00067   DocObjectsCollectionsIteratorImpl* pimpl_;
00068 };
00069
00070
00073 class DocObjectsCollectionsMutableIteratorImpl;
00074
00078 class SE_DLL_EXPORT DocObjectsCollectionsMutableIterator {
00079 private:
00081   DocObjectsCollectionsMutableIterator(
00082       const DocObjectsCollectionsMutableIteratorImpl& pimpl);
00083
00084 public:
00086   DocObjectsCollectionsMutableIterator(
00087       const DocObjectsCollectionsMutableIterator& other);
00089   DocObjectsCollectionsMutableIterator& operator =(
00090       const DocObjectsCollectionsMutableIterator& other);
00092   ~DocObjectsCollectionsMutableIterator();
00093
00095   static DocObjectsCollectionsMutableIterator ConstructFromImpl(
00096       const DocObjectsCollectionsMutableIteratorImpl& pimpl);
00097
00099   int GetID() const;
00101   const DocObjectsCollection& GetObjectsCollection() const;
00103   DocObjectsCollection& GetMutableObjectsCollection() const;
00105   const DocTagsCollection& GetTags() const;
00106
00108   const DocObjectsCollection* GetObjectsCollectionPtr() const;
00110   DocObjectsCollection* GetMutableObjectsCollectionPtr() const;
00112   const DocTagsCollection* GetTagsPtr() const;
00114   void Advance();
00115
00117   bool Equals(const DocObjectsCollectionsMutableIterator& rvalue) const;
00119   bool operator ==(const DocObjectsCollectionsMutableIterator& rvalue) const;
00121   bool operator !=(const DocObjectsCollectionsMutableIterator& rvalue) const;
00122
00123 private:
00125   DocObjectsCollectionsMutableIteratorImpl* pimpl_;
00126 };
00127
00128
00131 class DocObjectsCollectionsSliceIteratorImpl;
00132
```

```
00133
00137 class SE_DLL_EXPORT DocObjectsCollectionsSliceIterator {
00138 private:
00140   DocObjectsCollectionsSliceIterator(
00141       const DocObjectsCollectionsSliceIteratorImpl& pimpl);
00142
00143 public:
00145   DocObjectsCollectionsSliceIterator(
00146       const DocObjectsCollectionsSliceIterator& other);
00148   DocObjectsCollectionsSliceIterator& operator =(
00149       const DocObjectsCollectionsSliceIterator& other);
00151   ~DocObjectsCollectionsSliceIterator();
00152
00154   static DocObjectsCollectionsSliceIterator ConstructFromImpl(
00155       const DocObjectsCollectionsSliceIteratorImpl& pimpl);
00156
00158   int GetID() const;
00160   const DocObjectsCollection& GetObjectsCollection() const;
00162   const DocTagsCollection& GetTags() const;
00164   const DocObjectsCollection* GetObjectsCollectionPtr() const;
00166   const DocTagsCollection* GetTagsPtr() const;
00168   void Advance();
00169
00172   bool Finished() const;
00173
00174 private:
00176   DocObjectsCollectionsSliceIteratorImpl* pimpl_;
00177 };
00178
00179
00182 class DocObjectsCollectionsMutableSliceIteratorImpl;
00183
00184
00188 class SE_DLL_EXPORT DocObjectsCollectionsMutableSliceIterator {
00189 private:
00191   DocObjectsCollectionsMutableSliceIterator(
00192       const DocObjectsCollectionsMutableSliceIteratorImpl& pimpl);
00193
00194 public:
00196   DocObjectsCollectionsMutableSliceIterator(
00197       const DocObjectsCollectionsMutableSliceIterator& other);
00199   DocObjectsCollectionsMutableSliceIterator& operator =(
00200       const DocObjectsCollectionsMutableSliceIterator& other);
00202   ~DocObjectsCollectionsMutableSliceIterator();
00203
00205   static DocObjectsCollectionsMutableSliceIterator ConstructFromImpl(
00206       const DocObjectsCollectionsMutableSliceIteratorImpl& pimpl);
00207
00209   int GetID() const;
00211   const DocObjectsCollection& GetObjectsCollection() const;
00213   DocObjectsCollection& GetMutableObjectsCollection() const;
00215   const DocTagsCollection& GetTags() const;
00217   const DocObjectsCollection* GetObjectsCollectionPtr() const;
00219   DocObjectsCollection* GetMutableObjectsCollectionPtr() const;
00221   const DocTagsCollection* GetTagsPtr() const;
00223   void Advance();
00224
00227   bool Finished() const;
00228
00229 private:
00231   DocObjectsCollectionsMutableSliceIteratorImpl* pimpl_;
00232 };
00233
00234
00235 } } // namespace se::doc
00236
00237 #endif // DOCENGINE_DOC_OBJECTS_COLLECTIONS_ITERATOR_H_INCLUDED
```

2.29 doc_processing_settings.h File Reference

Smart Document Engine source processing settings.

Classes

- class se::doc::DocProcessingSettings

  The class representing the settings of a single processing iteration.

2.29.1 Detailed Description

Smart Document Engine source processing settings.

Definition in file doc_processing_settings.h.

2.30 doc_processing_settings.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_PROCESSING_SETTINGS_H_INCLUDED
00012 #define DOCENGINE_DOC_PROCESSING_SETTINGS_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_feedback.h>
00016 #include <docengine/doc_forward_declarations.h>
00017
00018 namespace se { namespace doc {
00019
00023 class SE_DLL_EXPORT DocProcessingSettings {
00024 public:
00026   virtual ~DocProcessingSettings() = default;
00027
00029   virtual int GetCurrentSourceID() const = 0;
00031   virtual void SetCurrentSourceID(int source_id) = 0;
00032
00034   virtual int GetOptionsCount() const = 0;
00036   virtual bool HasOption(const char* option_name) const = 0;
00038   virtual const char* GetOption(const char* option_name) const = 0;
00040   virtual void SetOption(const char* option_name, const char* option_value) = 0;
00042   virtual void RemoveOption(const char* option_name) = 0;
00044   virtual se::common::StringsMapIterator OptionsBegin() const = 0;
00046   virtual se::common::StringsMapIterator OptionsEnd() const = 0;
00047
00049   virtual int GetAvailableRoutinesCount() const = 0;
00051   virtual bool HasAvailableRoutine(const char* routine_name) const = 0;
00053   virtual se::common::StringsMapIterator AvailableRoutinesBegin() const = 0;
00055   virtual se::common::StringsMapIterator AvailableRoutinesEnd() const = 0;
00056
00058   virtual int RoutinesQueueSize() const = 0;
00060   virtual const char* RoutinesQueueFront() const = 0;
00062   virtual void RoutinesQueuePush(const char* routine_name) = 0;
00064   virtual void RoutinesQueuePop() = 0;
00066   virtual void RoutinesQueueClear() = 0;
00067
00069   virtual int GetSessionOptionsCount() const = 0;
00071   virtual bool HasSessionOption(const char* option_name) const = 0;
00073   virtual const char* GetSessionOption(const char* option_name) const = 0;
00075   virtual se::common::StringsMapIterator SessionOptionsBegin() const = 0;
00077   virtual se::common::StringsMapIterator SessionOptionsEnd() const = 0;
00078
00080   virtual int GetEnabledDocumentTypesCount() const = 0;
00082   virtual bool HasEnabledDocumentType(const char* doc_name) const = 0;
00084   virtual const char* GetEnabledDocumentType(int doc_id) const = 0;
00085
00087   virtual void BindFeedbackReporter(DocFeedback* feedback_reporter) = 0;
00089   virtual DocFeedback* GetFeedbackReporter() const = 0;
00090 };
00091
00092
00093 } } // namespace se::doc
00094
00095 #endif // DOCENGINE_DOC_PROCESSING_SETTINGS_H_INCLUDED
```

2.31 doc_result.h File Reference

Smart Document Engine result representation.

Classes

- class se::doc::DocResult

  The class representing the document analysis and recognition result.

2.31.1 Detailed Description

Smart Document Engine result representation.

Definition in file doc_result.h.

2.32 doc_result.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_RESULT_H_INCLUDED
00012 #define DOCENGINE_DOC_RESULT_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_forward_declarations.h>
00016 #include <docengine/doc_documents_iterator.h>
00017 #include <docengine/doc_suite.h>
00018 #include <docengine/doc_physical_document.h>
00019
00020 namespace se { namespace doc {
00021
00025 class SE_DLL_EXPORT DocResult {
00026 public:
00028   virtual ~DocResult() = default;
00029
00031   virtual DocResult* PartialClone() const = 0;
00032
00034   virtual const DocGraphicalStructure& GetGraphicalStructure() const = 0;
00036   virtual DocGraphicalStructure& GetMutableGraphicalStructure() = 0;
00038   virtual const DocGraphicalStructure* GetGraphicalStructurePtr() const = 0;
00040   virtual DocGraphicalStructure* GetMutableGraphicalStructurePtr() = 0;
00041
00043   virtual int GetDocumentsCount() const = 0;
00045   virtual bool HasDocument(int doc_id) const = 0;
00047   virtual const Document& GetDocument(int doc_id) const = 0;
00049   virtual Document& GetMutableDocument(int doc_id) = 0;
00051   virtual const DocTagsCollection& GetDocumentTags(int doc_id) const = 0;
00053   virtual const Document* GetDocumentPtr(int doc_id) const = 0;
00055   virtual Document* GetMutableDocumentPtr(int doc_id) = 0;
00057   virtual const DocTagsCollection* GetDocumentTagsPtr(int doc_id) const = 0;
00059   virtual DocumentsMutableIterator AddDocument(const Document& doc) = 0;
00061   virtual void SetDocument(int doc_id, const Document& doc) = 0;
00063   virtual void RemoveDocument(int doc_id) = 0;
00064
00066   virtual DocumentsIterator DocumentsBegin() const = 0;
00068   virtual DocumentsIterator DocumentsEnd() const = 0;
00069
00071   virtual DocumentsMutableIterator MutableDocumentsBegin() = 0;
00073   virtual DocumentsMutableIterator MutableDocumentsEnd() = 0;
00074
00076   virtual DocumentsSliceIterator DocumentsSlice(const char* tag) const = 0;
00077
00079   virtual DocumentsMutableSliceIterator MutableDocumentsSlice(
00080       const char* tag) = 0;
00081
00083   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00084
00086   virtual bool CanBuildPDFABuffer() const = 0;
00087
00089   virtual void BuildPDFABuffer() = 0;
00090
00092   virtual void GetPDFABuffer(unsigned char* output_buf, unsigned long long buf_size) const = 0;
00093
00095   virtual int GetPDFABufferSize() const = 0;
00096
00098   virtual void SetAddTextMode(const char* mode_name) = 0;
```

```
00099
00101   virtual const char* GetAddTextMode() const = 0;
00102
00104   virtual bool HasAddTextMode(const char* mode_name) const = 0;
00105
00107   virtual se::common::StringsVectorIterator AddTextModesBegin() const = 0;
00109   virtual se::common::StringsVectorIterator AddTextModesEnd() const = 0;
00110
00112   virtual void SetTextTypeMode(const char* mode_name) = 0;
00113
00115   virtual const char* GetTextTypeMode() const = 0;
00116
00118   virtual bool HasTextTypeMode(const char* mode_name) const = 0;
00119
00121   virtual se::common::StringsVectorIterator TextTypeModesBegin() const = 0;
00123   virtual se::common::StringsVectorIterator TextTypeModesEnd() const = 0;
00124
00126   virtual void SetColourMode(const bool with_colour) = 0;
00127
00129   virtual bool GetColourMode() const = 0;
00130
00132   virtual int GetDocSuitesCount() const = 0;
00133
00135   virtual const DocSuite& GetDocSuite(int idx) const = 0;
00136
00138   virtual const DocSuite* GetDocSuitePtr(int idx) const = 0;
00139
00141   virtual DocSuite& GetMutableSuite(int idx) = 0;
00142
00144   virtual DocSuite* GetMutableSuitePtr(int idx) = 0;
00145
00147   virtual const DocPhysicalDocument& GetPhysicalDocument(int idx) const = 0;
00148
00150   virtual DocPhysicalDocument& GetMutablePhysicalDocument(int idx) = 0;
00151
00153   virtual const DocPhysicalDocument* GetPhysicalDocumentPtr(int idx) const = 0;
00154
00156   virtual DocPhysicalDocument* GetMutablePhysicalDocumentPtr(int idx) = 0;
00157
00158
00159 };
00160
00161 } } // namespace se::doc
00162
00163 #endif // DOCENGINE_DOC_RESULT_H_INCLUDED
```

2.33 doc_session.h File Reference

Smart Document Engine image processing session.

Classes

- class se::doc::DocSession

  The class representing image processing session - main processing class of Smart Document Engine.

2.33.1 Detailed Description

Smart Document Engine image processing session.

Definition in file doc_session.h.

2.34 doc_session.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_SESSION_H_INCLUDED
00012 #define DOCENGINE_DOC_SESSION_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_forward_declarations.h>
00016
00017 namespace se { namespace doc {
00018
00019
00024 class SE_DLL_EXPORT DocSession {
00025 public:
00027   virtual ~DocSession() = default;
00028
00034   virtual DocProcessingSettings* CreateProcessingSettings() const = 0;
00035
00041   virtual int RegisterImage(const se::common::Image& in_image) = 0;
00042
00047   virtual const char* GetActivationRequest() = 0;
00048
00053   virtual void Activate(const char* activation_response) = 0;
00054
00059   virtual bool IsActivated() const = 0;
00060
00066   virtual void ProcessImage(const se::common::Image& in_image, const DocProcessingSettings& settings)
      = 0;
00067
00069   virtual void Process(DocProcessingSettings& settings) = 0;
00070
00072   virtual void Reset() = 0;
00073
00075   virtual const DocResult& GetCurrentResult() const = 0;
00077   virtual DocResult& GetMutableCurrentResult() = 0;
00078
00080   virtual const DocResult* GetCurrentResultPtr() const = 0;
00082   virtual DocResult* GetMutableCurrentResultPtr() = 0;
00083
00085   virtual const char* GetType() const = 0;
00086 };
00087
00088
00089 } } // namespace se::doc
00090
00091 #endif // DOCENGINE_DOC_SESSION_H_INCLUDED
```

2.35 doc_session_settings.h File Reference

Smart Document Engine session settings.

Classes

- class se::doc::DocSessionSettings

  The class representing the document processing session settings.

2.35.1 Detailed Description

Smart Document Engine session settings.

Definition in file doc_session_settings.h.

2.36 doc_session_settings.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_SESSION_SETTINGS_H_INCLUDED
00012 #define DOCENGINE_DOC_SESSION_SETTINGS_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_document_info.h>
00016 #include <docengine/doc_suite_settings.h>
00017
00018
00019 namespace se { namespace doc {
00020
00021
00025 class SE_DLL_EXPORT DocSessionSettings {
00026 public:
00028   virtual ~DocSessionSettings() = default;
00029
00035   virtual DocSessionSettings* Clone() const = 0;
00036
00038   virtual int GetOptionsCount() const = 0;
00040   virtual bool HasOption(const char* option_name) const = 0;
00042   virtual const char* GetOption(const char* option_name) const = 0;
00044   virtual void SetOption(const char* option_name, const char* option_value) = 0;
00046   virtual void RemoveOption(const char* option_name) = 0;
00048   virtual se::common::StringsMapIterator OptionsBegin() const = 0;
00050   virtual se::common::StringsMapIterator OptionsEnd() const = 0;
00051
00053   virtual int GetSupportedModesCount() const = 0;
00055   virtual bool HasSupportedMode(const char* mode_name) const = 0;
00057   virtual const char* GetSupportedMode(int mode_id) const = 0;
00059   virtual se::common::StringsVectorIterator SupportedModesBegin() const = 0;
00061   virtual se::common::StringsVectorIterator SupportedModesEnd() const = 0;
00062
00064   virtual const char* GetCurrentMode() const = 0;
00066   virtual void SetCurrentMode(const char* mode_name) = 0;
00067
00069   virtual int GetInternalEnginesCount() const = 0;
00072   virtual int GetSupportedDocumentTypesCount(int engine_id) const = 0;
00075   virtual bool HasSupportedDocumentType(
00076       int         engine_id,
00077       const char* doc_name) const = 0;
00080   virtual const char* GetSupportedDocumentType(
00081       int engine_id,
00082       int doc_id) const = 0;
00083
00085   virtual int GetEnabledDocumentTypesCount() const = 0;
00087   virtual bool HasEnabledDocumentType(const char* doc_name) const = 0;
00089   virtual const char* GetEnabledDocumentType(int doc_id) const = 0;
00091   virtual const DocDocumentInfo& GetDocumentInfo(const char* doc_name) const = 0;
00093   virtual const DocDocumentInfo* GetDocumentInfoPtr(const char* doc_name) const = 0;
00094
00106   virtual void AddEnabledDocumentTypes(const char* doc_type_mask) = 0;
00107
00115   virtual void RemoveEnabledDocumentTypes(const char* doc_type_mask) = 0;
00116
00119   virtual se::common::StringsSetIterator PermissiblePrefixDocMasksBegin() = 0;
00122   virtual se::common::StringsSetIterator PermissiblePrefixDocMasksEnd() = 0;
00123
00126   virtual void AddEmptyDocSuiteSettings(const char* suite_name) = 0;
00127
00130   virtual DocSuiteSettings& GetDocSuiteSettings(const char* suite_name) const = 0;
00131
00134   virtual DocSuiteSettings& GetMultableDocSuiteSettings(const char* suite_name) = 0;
00135
00138   virtual DocSuiteSettings* GetDocSuiteSettingsPtr(const char* suite_name) const = 0;
00139
00142   virtual DocSuiteSettings* GetMultableDocSuiteSettingsPtr(const char* suite_name) = 0;
00143
00146   virtual bool IsForensicsEnabled() const = 0;
00147
00149   virtual void EnableForensics() = 0;
00150
00152   virtual void DisableForensics() = 0;
00153
00154 };
00155
00156
00157 } } // namespace se::doc
00158
00159 #endif // DOCENGINE_DOC_SESSION_SETTINGS_H_INCLUDED
```

2.37 doc_tags_collection.h File Reference

Smart Document Engine tags collection.

Classes

- class se::doc::DocTagsCollection

  The class representing the collection of tags.

2.37.1 Detailed Description

Smart Document Engine tags collection.

Definition in file doc_tags_collection.h.

2.38 doc_tags_collection.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_TAGS_COLLECTION_H_INCLUDED
00012 #define DOCENGINE_DOC_TAGS_COLLECTION_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_fields_iterators.h>
00016
00017 namespace se { namespace doc {
00018
00022 class SE_DLL_EXPORT DocTagsCollection {
00023 public:
00025   virtual ~DocTagsCollection() = default;
00026
00028   virtual int GetTagsCount() const = 0;
00030   virtual bool HasTag(const char* tag) const = 0;
00032   virtual void AddTag(const char* tag) = 0;
00034   virtual void RemoveTag(const char* tag) = 0;
00035
00037   virtual se::common::StringsSetIterator TagsBegin() const = 0;
00039   virtual se::common::StringsSetIterator TagsEnd() const = 0;
00040
00042   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00043
00044 public:
00050   static DocTagsCollection* Create();
00051 };
00052
00053
00054 } } // namespace se::doc
00055
00056 #endif // DOCENGINE_DOC_TAGS_COLLECTION_H_INCLUDED
```

2.39 doc_video_session.h File Reference

Smart Document Engine video processing session.

Classes

- class se::doc::DocVideoSession

  The class representing video processing session.

2.39.1 Detailed Description

Smart Document Engine video processing session.

Definition in file doc_video_session.h.

2.40 doc_video_session.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_VIDEO_SESSION_H_INCLUDED
00012 #define DOCENGINE_DOC_VIDEO_SESSION_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_forward_declarations.h>
00016
00017 namespace se { namespace doc {
00018
00019
00023 class SE_DLL_EXPORT DocVideoSession {
00024 public:
00026   virtual ~DocVideoSession() = default;
00027
00033   virtual DocProcessingSettings* CreateProcessingSettings() const = 0;
00034
00039   virtual const char* GetActivationRequest() = 0;
00040
00045   virtual void Activate(const char* activation_response) = 0;
00046
00051   virtual bool IsActivated() const = 0;
00052
00058   virtual void ProcessImage(
00059       const se::common::Image&     in_image,
00060       const DocProcessingSettings& settings) = 0;
00061
00063   virtual void Reset() = 0;
00064
00066   virtual const DocResult& GetCurrentResult() const = 0;
00068   virtual DocResult& GetMutableCurrentResult() = 0;
00069
00071   virtual const DocResult* GetCurrentResultPtr() const = 0;
00073   virtual DocResult* GetMutableCurrentResultPtr() = 0;
00074 };
00075
00076
00077 } } // namespace se::doc
00078
00079 #endif // DOCENGINE_DOC_VIDEO_SESSION_H_INCLUDED
```

2.41 doc_view.h File Reference

Smart Document Engine image view.

Classes

- class se::doc::DocView

  The class representing an image view stored in the graphical structure.

2.41.1 Detailed Description

Smart Document Engine image view.

Definition in file doc_view.h.

2.42 doc_view.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_VIEW_H_INCLUDED
00012 #define DOCENGINE_DOC_VIEW_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_forward_declarations.h>
00016
00017 namespace se { namespace doc {
00018
00019
00023 class SE_DLL_EXPORT DocView {
00024 public:
00026   static const char* BaseClassNameStatic();
00027
00028 public:
00030   virtual ~DocView() = default;
00031
00033   virtual const se::common::Image& GetImage() const = 0;
00035   virtual se::common::Image& GetMutableImage() = 0;
00037   virtual const se::common::Image* GetImagePtr() const = 0;
00039   virtual se::common::Image* GetMutableImagePtr() = 0;
00041   virtual void SetImage(const se::common::Image& image) = 0;
00042
00044   virtual int GetAncestorID() const = 0;
00046   virtual void SetAncestorID(int anc_id) = 0;
00047
00049   virtual int GetRootAncestorID() const = 0;
00051   virtual void SetRootAncestorID(int root_anc_id) = 0;
00052
00055   virtual const se::common::ProjectiveTransform& GetTransform() const = 0;
00058   virtual se::common::ProjectiveTransform& GetMutableTransform() = 0;
00060   virtual void SetTransform(const se::common::ProjectiveTransform& transform) = 0;
00061
00064   virtual const se::common::ProjectiveTransform* GetTransformPtr() const = 0;
00067   virtual se::common::ProjectiveTransform* GetMutableTransformPtr() = 0;
00068
00070   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00071 };
00072
00073
00074 } } // namespace se::doc
00075
00076 #endif // DOCENGINE_DOC_VIEW_H_INCLUDED
```

2.43 doc_views_collection.h File Reference

Smart Document Engine views collection.

Classes

- class se::doc::DocViewsCollection

  The class representing the collection of views.

2.43.1 Detailed Description

Smart Document Engine views collection.

Definition in file doc_views_collection.h.

2.44 doc_views_collection.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_VIEWS_COLLECTION_H_INCLUDED
00012 #define DOCENGINE_DOC_VIEWS_COLLECTION_H_INCLUDED
00013
00014 #include <secommon/se_common.h>
00015 #include <docengine/doc_forward_declarations.h>
00016 #include <docengine/doc_views_iterator.h>
00017
00018 namespace se { namespace doc {
00019
00020
00024 class SE_DLL_EXPORT DocViewsCollection {
00025 public:
00027   static const char* BaseClassNameStatic();
00028
00029 public:
00031   virtual ~DocViewsCollection() = default;
00032
00034   virtual int GetViewsCount() const = 0;
00036   virtual bool HasView(int view_id) const = 0;
00038   virtual const DocView& GetView(int view_id) const = 0;
00040   virtual DocView& GetMutableView(int view_id) = 0;
00042   virtual const DocTagsCollection& GetViewTags(int view_id) const = 0;
00044   virtual const DocView* GetViewPtr(int view_id) const = 0;
00046   virtual DocView* GetMutableViewPtr(int view_id) = 0;
00048   virtual const DocTagsCollection* GetViewTagsPtr(int view_id) const = 0;
00049
00055   virtual DocViewsMutableIterator RegisterView(
00056       const se::common::Image& image) = 0;
00057
00066   virtual DocViewsMutableIterator RegisterDerivedView(
00067       const se::common::Image&               image,
00068       int                                    ancestor_id,
00069       const se::common::ProjectiveTransform& transform) = 0;
00070
00072   virtual void DeleteOrphans() = 0;
00074   virtual void DeleteView(int view_id) = 0;
00075
00077   virtual DocViewsIterator ViewsBegin() const = 0;
00079   virtual DocViewsIterator ViewsEnd() const = 0;
00080
00082   virtual DocViewsMutableIterator MutableViewsBegin() = 0;
00084   virtual DocViewsMutableIterator MutableViewsEnd() = 0;
00085
00087   virtual DocViewsSliceIterator ViewsSlice(const char* tag) const = 0;
00088
00090   virtual DocViewsMutableSliceIterator MutableViewsSlice(const char* tag) = 0;
00091
00093   virtual void Serialize(se::common::Serializer& serializer) const = 0;
00094 };
00095
00096
00097 } } // namespace se::doc
00098
00099 #endif // DOCENGINE_DOC_VIEWS_COLLECTION_H_INCLUDED
```

2.45 doc_views_iterator.h File Reference

Smart Document Engine views iterator.

Classes

- class se::doc::DocViewsIterator

  Basic const-ref iterator for a collection of views.
- class se::doc::DocViewsMutableIterator

  Mutable-ref iterator for a collection of views.
- class se::doc::DocViewsSliceIterator

  Const-ref iterator for views with a given tag.
- class se::doc::DocViewsMutableSliceIterator

  Mutable-ref iterator for views with a given tag.

2.45.1 Detailed Description

Smart Document Engine views iterator.

Definition in file doc_views_iterator.h.

2.46 doc_views_iterator.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, Smart Engines Service LLC
00003   All rights reserved.
00004 */
00005
00011 #ifndef DOCENGINE_DOC_VIEWS_ITERATOR_H_INCLUDED
00012 #define DOCENGINE_DOC_VIEWS_ITERATOR_H_INCLUDED
00013
00014 #include <secommon/se_export_defs.h>
00015 #include <docengine/doc_forward_declarations.h>
00016
00017 namespace se { namespace doc {
00018
00019
00022 class DocViewsIteratorImpl;
00023
00027 class SE_DLL_EXPORT DocViewsIterator {
00028 private:
00030   DocViewsIterator(const DocViewsIteratorImpl& pimpl);
00031
00032 public:
00034   DocViewsIterator(const DocViewsIterator& other);
00036   DocViewsIterator& operator =(const DocViewsIterator& other);
00038   ~DocViewsIterator();
00039
00041   static DocViewsIterator ConstructFromImpl(const DocViewsIteratorImpl& pimpl);
00042
00044   int GetID() const;
00046   const DocView& GetView() const;
00048   const DocTagsCollection& GetTags() const;
00050   const DocView* GetViewPtr() const;
00052   const DocTagsCollection* GetTagsPtr() const;
00054   void Advance();
00055
00057   bool Equals(const DocViewsIterator& rvalue) const;
00059   bool operator ==(const DocViewsIterator& rvalue) const;
00061   bool operator !=(const DocViewsIterator& rvalue) const;
00062
00063 private:
00065   DocViewsIteratorImpl* pimpl_;
00066 };
00067
00068
00071 class DocViewsMutableIteratorImpl;
00072
00076 class SE_DLL_EXPORT DocViewsMutableIterator {
00077 private:
00079   DocViewsMutableIterator(const DocViewsMutableIteratorImpl& pimpl);
00080
00081 public:
00083   DocViewsMutableIterator(const DocViewsMutableIterator& other);
00085   DocViewsMutableIterator& operator =(const DocViewsMutableIterator& other);
00087   ~DocViewsMutableIterator();
00088
00090   static DocViewsMutableIterator ConstructFromImpl(
00091       const DocViewsMutableIteratorImpl& pimpl);
00092
00094   int GetID() const;
00096   const DocView& GetView() const;
00098   DocView& GetMutableView() const;
00100   const DocTagsCollection& GetTags() const;
00102   const DocView* GetViewPtr() const;
00104   DocView* GetMutableViewPtr() const;
00106   const DocTagsCollection* GetTagsPtr() const;
00108   void Advance();
00109
00111   bool Equals(const DocViewsMutableIterator& rvalue) const;
00113   bool operator ==(const DocViewsMutableIterator& rvalue) const;
00115   bool operator !=(const DocViewsMutableIterator& rvalue) const;
00116
```

```
00117 private:
00119   DocViewsMutableIteratorImpl* pimpl_;
00120 };
00121
00122
00125 class DocViewsSliceIteratorImpl;
00126
00130 class SE_DLL_EXPORT DocViewsSliceIterator {
00131 private:
00133   DocViewsSliceIterator(const DocViewsSliceIteratorImpl& pimpl);
00134
00135 public:
00137   DocViewsSliceIterator(const DocViewsSliceIterator& other);
00139   DocViewsSliceIterator& operator =(const DocViewsSliceIterator& other);
00141   ~DocViewsSliceIterator();
00142
00144   static DocViewsSliceIterator ConstructFromImpl(
00145       const DocViewsSliceIteratorImpl& pimpl);
00146
00148   int GetID() const;
00150   const DocView& GetView() const;
00152   const DocTagsCollection& GetTags() const;
00154   const DocView* GetViewPtr() const;
00156   const DocTagsCollection* GetTagsPtr() const;
00158   void Advance();
00159
00162   bool Finished() const;
00163
00164 private:
00166   DocViewsSliceIteratorImpl* pimpl_;
00167 };
00168
00169
00172 class DocViewsMutableSliceIteratorImpl;
00173
00177 class SE_DLL_EXPORT DocViewsMutableSliceIterator {
00178 private:
00180   DocViewsMutableSliceIterator(const DocViewsMutableSliceIteratorImpl& pimpl);
00181
00182 public:
00184   DocViewsMutableSliceIterator(const DocViewsMutableSliceIterator& other);
00186   DocViewsMutableSliceIterator& operator =(
00187       const DocViewsMutableSliceIterator& other);
00189   ~DocViewsMutableSliceIterator();
00190
00192   static DocViewsMutableSliceIterator ConstructFromImpl(
00193       const DocViewsMutableSliceIteratorImpl& pimpl);
00194
00196   int GetID() const;
00198   const DocView& GetView() const;
00200   DocView& GetMutableView() const;
00202   const DocTagsCollection& GetTags() const;
00204   const DocView* GetViewPtr() const;
00206   DocView* GetMutableViewPtr() const;
00208   const DocTagsCollection* GetTagsPtr() const;
00210   void Advance();
00211
00214   bool Finished() const;
00215
00216 private:
00218   DocViewsMutableSliceIteratorImpl* pimpl_;
00219 };
00220
00221
00222 } } // namespace se::doc
00223
00224 #endif // DOCENGINE_DOC_VIEWS_ITERATOR_H_INCLUDED
```

2.47 se_common.h File Reference

Include all interface headers of secommon library.

2.47.1 Detailed Description

Include all interface headers of secommon library.

Definition in file se_common.h.

2.48 se_common.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, 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
```

2.49 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.

2.49.1 Detailed Description

Exception classes for secommon library.

Definition in file se_exception.h.

2.50 se_exception.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, 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
```

2.51 se_export_defs.h File Reference

Export-related definitions for secommon library.

2.51.1 Detailed Description

Export-related definitions for secommon library.

Definition in file se_export_defs.h.

2.51.2 Macro Definition Documentation

SE_DLL_EXPORT

```
#define SE_DLL_EXPORT
```

Definition at line 20 of file se_export_defs.h.

2.52 se_export_defs.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, 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 gnuc
00020 #  define SE_DLL_EXPORT
00021 # endif // clang of gnuc
00022 #endif // defined _WIN32 && SE_EXPORTS
00023
00024 #endif // SECOMMON_SE_EXPORT_DEFS_H_INCLUDED
```

2.53 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::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.

2.53.1 Detailed Description

Basic geometric classes and procedures for secommon library.

Definition in file se_geometry.h.

2.54 se_geometry.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, 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 QuadranglesMapIteratorImpl;
00131
00135 class SE_DLL_EXPORT QuadranglesMapIterator {
00136 private:
00138   QuadranglesMapIterator(const QuadranglesMapIteratorImpl& pimpl);
00139
00140 public:
00142   QuadranglesMapIterator(const QuadranglesMapIterator& other);
00143
00145   QuadranglesMapIterator& operator =(const QuadranglesMapIterator& other);
00146
00148   ~QuadranglesMapIterator();
00149
00151   static QuadranglesMapIterator ConstructFromImpl(
00152       const QuadranglesMapIteratorImpl& pimpl);
00153
00155   const char* GetKey() const;
00156
00158   const Quadrangle& GetValue() const;
00159
00161   bool Equals(const QuadranglesMapIterator& rvalue) const;
00162
00164   bool operator ==(const QuadranglesMapIterator& rvalue) const;
00165
00167   bool operator !=(const QuadranglesMapIterator& rvalue) const;
00168
00170   void Advance();
00171
00173   void operator ++();
00174
00175 private:
00176   class QuadranglesMapIteratorImpl* pimpl_;
00177 };
00178
00179 class RectanglesVectorIteratorImpl;
00180
00181 class SE_DLL_EXPORT RectanglesVectorIterator {
00182 private:
00184   RectanglesVectorIterator(const RectanglesVectorIteratorImpl& pimpl);
00185
00186 public:
00188   RectanglesVectorIterator(const RectanglesVectorIterator& other);
00189
00191   RectanglesVectorIterator& operator =(const RectanglesVectorIterator& other);
00192
00194   ~RectanglesVectorIterator();
00195
00197   static RectanglesVectorIterator ConstructFromImpl(
00198       const RectanglesVectorIteratorImpl& pimpl);
00199
00201   const Rectangle& GetValue() const;
00202
00204   bool Equals(const RectanglesVectorIterator& rvalue) const;
00205
00207   bool operator ==(const RectanglesVectorIterator& rvalue) const;
00208
00210   bool operator !=(const RectanglesVectorIterator& rvalue) const;
00211
00213   void Advance();
00214
00216   void operator ++();
00217
00218 private:
00219   class RectanglesVectorIteratorImpl* pimpl_;
00220 };
00221
00225 class SE_DLL_EXPORT Polygon {
00226 public:
00228   Polygon();
00229
00231   Polygon(const Point* points, int points_count);
00232
00234   Polygon(const Polygon& other);
00235
00237   Polygon& operator =(const Polygon& other);
00238
00240   ~Polygon();
00241
00243   int GetPointsCount() const;
00244
00246   const Point* GetPoints() const;
```

```
00247
00249   Point& operator [](int index);
00250
00252   const Point& operator [](int index) const;
00253
00255   const Point& GetPoint(int index) const;
00256
00258   Point& GetMutablePoint(int index);
00259
00261   void SetPoint(int index, const Point& p);
00262
00266   void Resize(int size);
00267
00269   Rectangle GetBoundingRectangle() const;
00270
00272   void Serialize(Serializer& serializer) const;
00273
00275   void SerializeImpl(SerializerImplBase& serializer_impl) const;
00276
00277 private:
00278   int pts_cnt_;
00279   Point* pts_;
00280 };
00281
00282
00286 class SE_DLL_EXPORT ProjectiveTransform {
00287 public:
00288   using Raw2dArrayType = double[3][3];
00289
00290 public:
00291
00299   static bool CanCreate(const Quadrangle& src_quad, const Quadrangle& dst_quad);
00300
00309   static bool CanCreate(const Quadrangle& src_quad, const Size& dst_size);
00310
00315   static ProjectiveTransform* Create();
00316
00324   static ProjectiveTransform* Create(
00325       const Quadrangle& src_quad,
00326       const Quadrangle& dst_quad);
00327
00335   static ProjectiveTransform* Create(
00336       const Quadrangle& src_quad,
00337       const Size&       dst_size);
00338
00344   static ProjectiveTransform* Create(const Raw2dArrayType& coeffs);
00345
00346 public:
00348   virtual ~ProjectiveTransform() = default;
00349
00351   virtual ProjectiveTransform* Clone() const = 0;
00352
00354   virtual Point TransformPoint(const Point& p) const = 0;
00355
00357   virtual Quadrangle TransformQuad(const Quadrangle& q) const = 0;
00358
00360   virtual Polygon TransformPolygon(const Polygon& poly) const = 0;
00361
00363   virtual bool IsInvertable() const = 0;
00364
00366   virtual void Invert() = 0;
00367
00369   virtual ProjectiveTransform* CloneInverted() const = 0;
00370
00372   virtual const Raw2dArrayType& GetRawCoeffs() const = 0;
00373
00375   virtual Raw2dArrayType& GetMutableRawCoeffs() = 0;
00376
00378   virtual void Serialize(Serializer& serializer) const = 0;
00379 };
00380
00381
00382 } } // namespace se::common
00383
00384 #endif // SECOMMON_SE_GEOMETRY_H_INCLUDED
```

2.55 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.

2.55.1 Detailed Description

secommon library Image

Definition in file se_image.h.

2.55.2 Variable Documentation

IPF_G

```
IPF_G = 0
```

Greyscale.

Definition at line 27 of file se_image.h.

IPF_GA

```
IPF_GA
```

Greyscale + Alpha.

Definition at line 28 of file se_image.h.

IPF_AG

```
IPF_AG
```

Alpha + Greyscale.

Definition at line 29 of file se_image.h.

IPF_RGB

```
IPF_RGB
```

RGB.

Definition at line 30 of file se_image.h.

IPF_BGR

```
IPF_BGR
```

BGR.

Definition at line 31 of file se_image.h.

IPF_BGRA

```
IPF_BGRA
```

BGR + Alpha.

Definition at line 32 of file se_image.h.

IPF_ARGB

```
IPF_ARGB
```

Alpha + RGB.

Definition at line 33 of file se_image.h.

YUVTYPE_UNDEFINED

```
YUVTYPE_UNDEFINED = 0
```

No format.

Definition at line 41 of file se_image.h.

YUVTYPE_NV21

```
YUVTYPE_NV21 = 1
```

NV 21.

Definition at line 42 of file se_image.h.

2.56 se_image.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, 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
00629 } } // namespace se::common
00630
00631 #endif // SECOMMON_SE_IMAGE_H_INCLUDED
```

2.57 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.

2.57.1 Detailed Description

Facilities for serialization of objects.

Definition in file se_serialization.h.

2.58 se_serialization.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, 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
```

2.59 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::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.

2.59.1 Detailed Description

OcrString and related classes for secommon library.

Definition in file se_string.h.

2.60 se_string.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, 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 <cstddef>
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
00129 class SE_DLL_EXPORT OcrChar {
00130 public:
```

```
00132   OcrChar();
00133
00141   OcrChar(const OcrCharVariant* variants,
00142           int                   variants_count,
00143           bool                  is_highlighted,
00144           const Quadrangle&     quad);
00145
00147   OcrChar(const OcrChar& other);
00148
00150   OcrChar& operator =(const OcrChar& other);
00151
00153   ~OcrChar();
00154
00156   int GetVariantsCount() const;
00157
00159   const OcrCharVariant* GetVariants() const;
00160
00162   OcrCharVariant& operator [](int index);
00163
00165   const OcrCharVariant& operator [](int index) const;
00166
00168   const OcrCharVariant& GetVariant(int index) const;
00169
00171   OcrCharVariant& GetMutableVariant(int index);
00172
00174   void SetVariant(int index, const OcrCharVariant& v);
00175
00177   void Resize(int size);
00178
00180   bool GetIsHighlighted() const;
00181
00183   void SetIsHighlighted(bool is_highlighted);
00184
00186   const Quadrangle& GetQuadrangle() const;
00187
00189   Quadrangle& GetMutableQuadrangle();
00190
00192   void SetQuadrangle(const Quadrangle& quad);
00193
00195   void SortVariants();
00196
00198   const OcrCharVariant& GetFirstVariant() const;
00199
00201   void Serialize(Serializer& serializer) const;
00202
00204   void SerializeImpl(SerializerImplBase& serializer_impl) const;
00205
00206 private:
00207   int vars_cnt_;
00208   OcrCharVariant* vars_;
00209   bool is_highlighted_;
00210   Quadrangle quad_;
00211 };
00212
00213
00215 class OcrStringImpl;
00216
00220 class SE_DLL_EXPORT OcrString {
00221 private:
00223   OcrString(const OcrStringImpl& ocr_string_impl);
00224
00225 public:
00227   OcrString();
00228
00234   OcrString(const char* utf8_str);
00235
00241   OcrString(const OcrChar* chars, int chars_count);
00242
00244   OcrString(const OcrString& other);
00245
00247   OcrString& operator =(const OcrString& other);
00248
00250   ~OcrString();
00251
00256   static OcrString ConstructFromImpl(const class OcrStringImpl& ocr_string_impl);
00257
00259   const class OcrStringImpl* GetOcrStringImplPtr() const;
00260
00262   int GetCharsCount() const;
00263
00265   const OcrChar* GetChars() const;
00266
00268   OcrChar& operator [](int index);
00269
00271   const OcrChar& operator [](int index) const;
00272
00274   const OcrChar& GetChar(int index) const;
```

```
00275
00277   OcrChar& GetMutableChar(int index);
00278
00280   void SetChar(int index, const OcrChar& chr);
00281
00283   void AppendChar(const OcrChar& chr);
00284
00286   void AppendString(const OcrString& str);
00287
00289   void Resize(int size);
00290
00292   const Quadrangle GetQuadrangleByIndex(int idx) const;
00293
00295   float GetBestVariantConfidenceByIndex(int idx) const;
00296
00298   void SortVariants();
00299
00301   MutableString GetFirstString() const;
00302
00304   void UnpackChars();
00305
00307   void RepackChars();
00308
00310   void Serialize(Serializer& serializer) const;
00311
00313   void SerializeImpl(SerializerImplBase& serializer_impl) const;
00314
00315 private:
00316   OcrStringImpl* ocr_string_impl_;
00317 };
00318
00322 class SE_DLL_EXPORT ByteString {
00323 public:
00325   ByteString();
00326
00328   ~ByteString();
00329
00331   explicit ByteString(const unsigned char* bytes, size_t n);
00332
00334   ByteString(const ByteString &other);
00335
00337   ByteString &operator=(const ByteString &other);
00338
00340   void swap(ByteString &other) noexcept;
00341
00343   int GetLength() const noexcept;
00344
00346   int GetRequiredBase64BufferLength() const;
00347
00349   int CopyBase64ToBuffer(char* out_buffer, int buffer_length) const;
00350
00352   MutableString GetBase64String() const;
00353
00355   int GetRequiredHexBufferLength() const;
00356
00358   int CopyHexToBuffer(char* out_buffer, int buffer_length) const;
00359
00361   MutableString GetHexString() const;
00362
00363 private:
00364   size_t len_;
00365   uint8_t *buf_;
00366 };
00367
00368 } } // namespace se::common::
00369
00370 #endif // SECOMMON_SE_STRING_H_INCLUDED
```

2.61 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.

2.61.1 Detailed Description

String iterators used in SE libraries.

Definition in file se_strings_iterator.h.

2.62 se_strings_iterator.h

Go to the documentation of this file.

```
00001 /*
00002   Copyright (c) 2016-2024, 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
```

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