MLBookProc

1.1

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Chapter 1

MLBookProc

MLBookProc is a library for managing `.fb2`, `.epub`, `.pdf`, `.djvu` and `.odt` e-book file collections. It can also works with same formats packed in zip, 7z, jar, cpio, iso, tar, tar.gz, tar.bz2, tar.xz, rar archives (rar archives are available only for reading) itself or packed in same types of archives with `.fbd` files (epub, djvu and pdf books). **MLBookProc** creates own database and does not change files content, names or location.

To start add cmake package MLBookProc to your project.

```
find_package(MLBookProc)
if(MLBookProc_FOUND)
 target_include_directories(myproject PRIVATE MLBookProc::mlbookproc)
 target_link_libraries(myproject PUBLIC MLBookProc::mlbookproc)
endif()
```

Then create AuxFunc object. Further reading: CreateCollection, RefreshCollection, BaseKeeper, BookMarks, NotesKeeper, BookInfo, OpenBook.

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

Chapter 3

Class Index

3.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

Class Documentation

4.1 AddBook Class Reference

The AddBook class.

`#include <AddBook.h>`

Public Member Functions

- AddBook (const std::shared_ptr< AuxFunc > &af, const std::string &collection_name, const bool &remove_sources, const std::shared_ptr< BookMarks > &bookmarks)

  AddBook constructor.
- void simple_add (const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > > &books)

  Adds single book files.
- void simple_add_dir (const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > > &books)

  Adds directories containing book files to collection.
- void overwrite_archive (const std::filesystem::path &archive_path, const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > > &books)

  Removes archive from collection and replaces it by new one.
- void overwrite_archive_dir (const std::filesystem::path &archive_path, const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > > &books)

  Removes archive from collection and replaces it by new one.
- void add_to_existing_archive (const std::filesystem::path &archive_path, const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > > &books)

  Adds books to existing archive.
- void add_to_existing_archive_dir (const std::filesystem::path &archive_path, const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > > &books)

  Adds books to existing archive.

Static Public Member Functions

- static std::vector< std::string > archive_filenames (const std::filesystem::path &archive_path, const std::shared_ptr< AuxFunc > &af)

  Lists all files in archive.

4.1.1 Detailed Description

The AddBook class.

AddBook contains various methods to add books to collections.

4.1.2 Constructor & Destructor Documentation

4.1.2.1 AddBook()

```
AddBook::AddBook (
            const std::shared_ptr< AuxFunc > & af,
            const std::string & collection_name,
            const bool & remove_sources,
            const std::shared_ptr< BookMarks > & bookmarks)
```

AddBook constructor.

Parameters

af	AuxFunc object.
collection_name	name of collection book to be added to.
remove_sources	if *true*, **MLBookProc** will remove source file after book has been added.
bookmarks	BookMarks object.

4.1.3 Member Function Documentation

4.1.3.1 add_to_existing_archive()

```
void AddBook::add_to_existing_archive (
            const std::filesystem::path & archive_path,
            const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > >
& books)
```

Adds books to existing archive.

Unpacks existing archive and packs it again with old and new books inside.

Parameters

archive_path	absolute path to archive in collection.
books	vector, containing absolute paths to source books files (first tuple element) and relative paths to books in archive (second tuple element).

4.1.3.2 add_to_existing_archive_dir()

```
void AddBook::add_to_existing_archive_dir (
            const std::filesystem::path & archive_path,
            const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > >
& books)
```

Adds books to existing archive.

Same as add_to_existing_archive(), but adds directories to existing archive.

Parameters

archive_path	absolute path to archive in collection.
books	vector, containing absolute paths to source directories (first tuple element) and relative paths to directories in archive (second tuple element).

4.1.3.3 archive_filenames()

```
static std::vector< std::string > AddBook::archive_filenames (
            const std::filesystem::path & archive_path,
            const std::shared_ptr< AuxFunc > & af)  [static]
```

Lists all files in archive.

Parameters

archive_path	absolute path to archive.
af	smart pointer to AuxFunc object.

Returns

Vector containing relative paths of archive files.

4.1.3.4 overwrite_archive()

```
void AddBook::overwrite_archive (
            const std::filesystem::path & archive_path,
            const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > >
& books)
```

Removes archive from collection and replaces it by new one.

Removes archive from collection (if it exists) and creates new archive with the same name, containing books from books vector.

Parameters

archive_path	absolute path to archive file in collection.
books	vector, containing absolute paths to source books files (first tuple element) and relative paths to books files in archive (second tuple element).

4.1.3.5 overwrite_archive_dir()

```
void AddBook::overwrite_archive_dir (
            const std::filesystem::path & archive_path,
            const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > >
& books)
```

Removes archive from collection and replaces it by new one.

Same as overwrite_archive(), but creates new archive, containing directories from books vector.

Parameters

archive_path	absolute path to archive file in collection.
books	vector, containing absolute paths to source directories (first tuple element) and relative paths to directories in archive (second tuple element).

4.1.3.6 simple_add()

```
void AddBook::simple_add (
            const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > >
& books)
```

Adds single book files.

Adds books, listed in vector, to collection and parse them. User must set both paths manually.

Warning

Second tuples paths must not be outside collection books directory.

Parameters

books	vector, containing absolute paths to source files (first tuple element) and absolute paths of books files in collection (second tuple element).

4.1.3.7 simple_add_dir()

```
void AddBook::simple_add_dir (
            const std::vector< std::tuple< std::filesystem::path, std::filesystem::path > >
& books)
```

Adds directories containing book files to collection.

Same as simple_add(), but adds directories containing books to collection.

Warning

Second tuples paths must not be outside collection books directory.

Parameters

books	vector, containing absolute paths to source directories (first tuple element) and absolute paths of directories in collection (second tuple element).

4.2 ArchEntry Class Reference

The ArchEntry class.

```
#include <ArchEntry.h>
```

Public Member Functions

- **ArchEntry** ()

  ArchEntry constructor.
- **ArchEntry** (const ArchEntry &other)

  ArchEntry copy constructor.
- **ArchEntry** (ArchEntry &&other)

  ArchEntry move constructor.
- ArchEntry & **operator=** (const ArchEntry &other)

  operator =
- ArchEntry & **operator=** (ArchEntry &&other)

  operator =

Public Attributes

- uint64_t **size** = 0

  Size of unpacked entry object (if available, 0 otherwise).
- uint64_t **compressed_size** = 0

  Size of compressed object (if available, 0 otherwise).
- int64_t **position** = -1

  Position of entry in archive file (if available, -1 otherwise).
- std::string **filename**

  Path to file or directory in archive.

4.2.1 Detailed Description

The ArchEntry class.

Auxiliary class for LibArchive. Contains some technical info about compressed files and directories. In most cases you do not need to create AcrhEntry objects yourself.

4.3 ArchiveFileEntry Class Reference

The ArchiveFileEntry class.

`#include <ArchiveFileEntry.h>`

Public Member Functions

- **ArchiveFileEntry** ()

  ArchiveFileEntry constructor.
- virtual ~**ArchiveFileEntry** ()

  ArchiveFileEntry destructor.

Public Attributes

- std::fstream **file**

  Archive file stream.
- std::filesystem::path **file_path**

  Archive file absolute path.
- la_ssize_t **buf_sz** = 1048576

  Size of buffer to be used in file stream.
- la_ssize_t **read_bytes** = 0

  Number of bites already read from archive file.
- la_ssize_t **file_size** = 0

  Archive file size.
- char * **read_buf** = nullptr

  Buffer to be used in file stream.

4.3.1 Detailed Description

The ArchiveFileEntry class.

Auxiliary class for LibArchive methods. In most cases you do not need to create it directly, use LibArchive::createArchFile() method instead.

4.4 ArchiveRemoveEntry Class Reference

The ArchiveRemoveEntry class.

`#include <ArchiveRemoveEntry.h>`

Public Member Functions

- **ArchiveRemoveEntry** ()

  ArchiveRemoveEntry constructor.
- virtual ~**ArchiveRemoveEntry** ()

  ArchiveRemoveEntry destructor.
- **ArchiveRemoveEntry** (const ArchiveRemoveEntry &other)

  ArchiveRemoveEntry copy constructor.
- **ArchiveRemoveEntry** (ArchiveRemoveEntry &&other)

  ArchiveRemoveEntry move constructor.
- ArchiveRemoveEntry & **operator=** (const ArchiveRemoveEntry &other)

  operator =
- ArchiveRemoveEntry & **operator=** (ArchiveRemoveEntry &&other)

  operator =

Public Attributes

- std::shared_ptr< archive > **a_read**

  libarchive object, file to be removed from.
- std::shared_ptr< archive > **a_write**

  libarchive object for new archive.
- std::shared_ptr< ArchiveFileEntry > **fl**

  ArchiveFileEntry object, file to be removed from.

4.4.1 Detailed Description

The ArchiveRemoveEntry class.

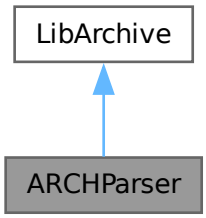
Auxiliary class for LibArchive, to be used in case of removing files from archives. In most cases you do not need to use it directly.

4.5 ARCHParser Class Reference

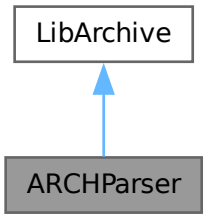
The ARCHParser class.

`#include <ARCHParser.h>`

Inheritance diagram for ARCHParser:



Collaboration diagram for ARCHParser:



Public Member Functions

- ARCHParser (const std::shared_ptr< AuxFunc > &af, const bool &rar_support)

  ARCHParser constructor.
- virtual ~**ARCHParser** ()

  ARCHParser destructor.
- std::vector< BookParseEntry > arch_parser (const std::filesystem::path &filepath)

  This method carries out actual parsing.
- void **stopAll** ()

  Stops all operations.

Public Member Functions inherited from LibArchive

- LibArchive (const std::shared_ptr< AuxFunc > &af)

  LibArchive constructor.
- std::filesystem::path unpackByPosition (const std::filesystem::path &archaddress, const std::filesystem::path &outfolder, const ArchEntry &entry)

  Unpacks single entry content from zip archive.
- std::string unpackByPositionStr (const std::filesystem::path &archaddress, const ArchEntry &entry)

  Unpacks single entry content from zip archive.
- std::filesystem::path unpackByFileNameStream (const std::filesystem::path &archaddress, const std::filesystem::path &outfolder, const std::string &filename)

  Unpacks entry content from archive.
- std::string unpackByFileNameStreamStr (const std::filesystem::path &archaddress, const std::string &filename)

  Unpacks entry content from archive.
- int fileNames (const std::filesystem::path &filepath, std::vector< ArchEntry > &filenames)

  Lists all entries in archive file.
- int fileNamesStream (const std::filesystem::path &address, std::vector< ArchEntry > &filenames)

  Lists all entries in archive file.
- ArchEntry fileinfo (const std::filesystem::path &address, const std::string &filename)

  Returns ArchEntry for particular file or directory in archive.
- int libarchive_packing (const std::filesystem::path &sourcepath, const std::filesystem::path &outpath)

  Packs file or directory into archive.
- int libarchive_packing (const std::shared_ptr< archive > &a, const std::filesystem::path &sourcepath, const bool &rename_source, const std::string &new_source_name)

  Packs file or directory into archive.
- ArchiveRemoveEntry libarchive_remove_init (const std::filesystem::path &sourcepath, const std::filesystem::path &outpath)

  Initializes archive objects for removing entries from archive.
- int libarchive_remove_entry (ArchiveRemoveEntry rm_e, const std::vector< ArchEntry > &to_remove)

  Removes entry from archive.
- void libarchive_error (const std::shared_ptr< archive > &a, const std::string &message, const int &error_number)

  Prints libarchive error messages.
- std::string libarchive_read_entry_str (archive *a, archive_entry *entry)

  Reads archived file to stirng.
- int libarchive_write_data (archive *a, const std::string &data)

  Writes data to archive.
- std::shared_ptr< ArchiveFileEntry > createArchFile (const std::filesystem::path &archaddress, const la_int64_t &position=la_int64_t(0))

  Creates ArchiveFileEntry object.
- std::shared_ptr< archive > libarchive_read_init (std::shared_ptr< ArchiveFileEntry > fl)

  Initializes archive reading.
- std::shared_ptr< archive > libarchive_read_init_fallback (std::shared_ptr< ArchiveFileEntry > fl)

  Initializes archive reading.
- std::filesystem::path libarchive_read_entry (archive *a, archive_entry *entry, const std::filesystem::path &outfolder)

  Unpacks libarchive entry content.
- std::shared_ptr< archive > libarchive_write_init (const std::filesystem::path &outpath)

  Initializes writing to archive.
- int writeToArchive (std::shared_ptr< archive > a, const std::filesystem::path &source, const std::filesystem::path &path_in_arch)

Writes file or directory to archive.

- int libarchive_write_directory (archive *a, archive_entry *entry, const std::filesystem::path &path_in_arch, const std::filesystem::path &source)

  Writes directory to archive.
- int libarchive_write_file (archive *a, archive_entry *entry, const std::filesystem::path &path_in_arch, const std::filesystem::path &source)

  Writes file to archive.
- int libarchive_write_data_from_file (archive *a, const std::filesystem::path &source)

  Writes raw data from file to archive.

4.5.1 Detailed Description

The ARCHParser class.

Class for archives parsing. In most cases you do not need to use this class directly. Use CreateCollection or RefreshCollection instead.

4.5.2 Constructor & Destructor Documentation

4.5.2.1 ARCHParser()

```
ARCHParser::ARCHParser (
            const std::shared_ptr< AuxFunc > & af,
            const bool & rar_support)
```

ARCHParser constructor.

Parameters

af	smart pointer to AuxFunc object.
rar_support	if *true*, ARCHParser will parse rar archives, otherwise not.

4.5.3 Member Function Documentation

4.5.3.1 arch_parser()

```
std::vector< BookParseEntry > ARCHParser::arch_parser (
            const std::filesystem::path & filepath)
```

This method carries out actual parsing.

Call this method to start archive parsing.

Parameters

filepath	absolute path to archive.

Returns

Vector of BookParseEntry objects.

4.6 AuxFunc Class Reference

The AuxFunc class.

`#include <AuxFunc.h>`

Public Member Functions

- virtual ~**AuxFunc** ()

  AuxFunc destructor.
- std::string to_utf_8 (const std::string &input, const char *conv_name)

  Converts string to UTF-8 string.
- std::string utf8_to_system (const std::string &input)

  Converts UTF-8 string to string in system default encoding.
- std::string utf_8_to (const std::string &input, const char *conv_name)

  Converts UTF-8 string to string in chosen encoding.
- const char * get_converter_by_number (const int32_t &num)

  Returns converter name.
- std::string detect_encoding (const std::string &buf)

  Tries to detect string encoding.
- std::filesystem::path homePath ()

  Returns user home directory path.
- std::filesystem::path get_selfpath ()

  Returns absolute path to program executable file.
- std::filesystem::path temp_path ()

  Returns absolute path to system temporary directory.
- std::filesystem::path share_path ()

  *Returns absolute path to share directory, used by **MLBookProc**.*
- std::vector< GenreGroup > get_genre_list ()

  Returns translated genre groups and genres names.
- std::string libgcrypt_error_handling (const gcry_error_t &err)

  Auxiliary method to reinterpret libgcrypt errors as strings.
- std::string to_hex (const std::string &source)

  Converts given string to hex format.
- std::string stringToLower (const std::string &line)

  Converts all letters of the string to lowercase letters.
- std::string randomFileName ()

  Returns random string.
- std::string time_t_to_date (const time_t &tt)

  Converts time_t value to calendar date.
- bool if_supported_type (const std::filesystem::path &ch_p)

  *Checks if given file is supported by **MLBookProc**.*
- void html_to_utf8 (std::string &input)

  Converst 'html' symbols to UTF-8 characters.
- void open_book_callback (const std::filesystem::path &path)

  Opens given file in default system application.
- void copy_book_callback (const std::filesystem::path &source, const std::filesystem::path &out)

  Replaces out file by source file.
- std::vector< std::string > get_supported_types ()

  Returns supported file types.

- std::vector< std::string > get_supported_archive_types_packing ()

  Same as get_supported_types(), but returns only archives types, available for packing.
- std::vector< std::string > get_supported_archive_types_unpacking ()

  Same as get_supported_types(), but returns only archives types, available for unpacking.
- std::string get_extension (const std::filesystem::path &p)

  Returns file extesion.
- int32_t get_charset_conv_quantity ()

  Returns number of available converters.
- bool get_activated ()

  Checks if depencies have been successfully activated.
- std::shared_ptr< ddjvu_context_t > getDJVUContext ()

  Returns smart pointer to djvu context object.

Static Public Member Functions

- static std::shared_ptr< AuxFunc > create ()

  Creats AuxFunc object.

4.6.1 Detailed Description

The AuxFunc class.

AuxFunc class contains various useful auxiliary methods. AuxFunc object must be created (see create()) before using of any **MLBookProc** methods or classes. create() method should be called only once per program. Also it is strongly recommended to call get_activated() method immediately after AuxFunc object creation.

4.6.2 Member Function Documentation

4.6.2.1 copy_book_callback()

```
void AuxFunc::copy_book_callback (
            const std::filesystem::path & source,
            const std::filesystem::path & out)
```

Replaces out file by source file.

This method acts like std::filesystem::copy. It was introduced due to MinGW bug (MinGW ignores std::filesystem↩ ::copy_options::overwrite_existing).

Parameters

source	file to be copied.
out	file to be replaced.

4.6.2.2 create()

```
static std::shared_ptr< AuxFunc > AuxFunc::create ()  [static]
```

Creats AuxFunc object.

This method must be called before using of any **MLBookProc** classes or methods.

Warning

This method should be called only once per program.

Returns

Smart pointer to AuxFunc object.

4.6.2.3 detect_encoding()

```
std::string AuxFunc::detect_encoding (
            const std::string & buf)
```

Tries to detect string encoding.

Parameters

buf	string which encoding is to be detected.

Returns

String containing encoding name.

4.6.2.4 get_activated()

```
bool AuxFunc::get_activated ()
```

Checks if depencies have been successfully activated.

Returns

true if all dependencies have been successfully activated, *false* otherwise.

4.6.2.5 get_charset_conv_quantity()

```
int32_t AuxFunc::get_charset_conv_quantity ()
```

Returns number of available converters.

See icu documentation for details.

Returns

Signed 32-bit integer number of available convertrs.

4.6.2.6 get_converter_by_number()

```
const char * AuxFunc::get_converter_by_number (
            const int32_t & num)
```

Returns converter name.

Parameters

num	converter number (see icu documentation for details).

Returns

Pointer to string, containing converter name.

4.6.2.7 get_extension()

```
std::string AuxFunc::get_extension (
            const std::filesystem::path & p)
```

Returns file extesion.

Parameters

p	absolute path to file.

Returns

File extension with beginning dot (looks like ".tar.gz").

4.6.2.8 get_genre_list()

```
std::vector< GenreGroup > AuxFunc::get_genre_list ()
```

Returns translated genre groups and genres names.

Resulting genre groups and genres will be in default system language, if translations are available, or in English.

Returns

Vector of GenreGroup objects.

4.6.2.9 get_selfpath()

```
std::filesystem::path AuxFunc::get_selfpath ()
```

Returns absolute path to program executable file.

Returns

Absolute path to executable file.

4.6.2.10 get_supported_archive_types_packing()

```
std::vector< std::string > AuxFunc::get_supported_archive_types_packing ()
```

Same as get_supported_types(), but returns only archives types, available for packing.

Returns

Vector of supported archives types.

4.6.2.11 get_supported_archive_types_unpacking()

```
std::vector< std::string > AuxFunc::get_supported_archive_types_unpacking ()
```

Same as get_supported_types(), but returns only archives types, available for unpacking.

Returns

Vector of supported archives types.

4.6.2.12 get_supported_types()

```
std::vector< std::string > AuxFunc::get_supported_types ()
```

Returns supported file types.

Returns

Vector of supported files extensions without beginning dot (looks like "fb2").

4.6.2.13 getDJVUContext()

```
std::shared_ptr< ddjvu_context_t > AuxFunc::getDJVUContext ()
```

Returns smart pointer to djvu context object.

Warning

Resulting smart pointer can be *nullptr* (see get_activated()).

Returns

Smart pointer to djvu context object.

4.6.2.14 homePath()

```
std::filesystem::path AuxFunc::homePath ()
```

Returns user home directory path.

Returns

Absolute path to home directory.

4.6.2.15 html_to_utf8()

```
void AuxFunc::html_to_utf8 (
            std::string & input)
```

Converst 'html' symbols to UTF-8 characters.

Replaces "&#<unicode_number>;" symbols by UTF-8 characters.

Parameters

input	string to be converted.

4.6.2.16 if_supported_type()

```
bool AuxFunc::if_supported_type (
            const std::filesystem::path & ch_p)
```

Checks if given file is supported by **MLBookProc**.

'Supported types' check is carried out by file extension.

Parameters

ch_p	absolute path to file.

Returns

true if file is supported, *false* otherwise.

4.6.2.17 libgcrypt_error_handling()

```
std::string AuxFunc::libgcrypt_error_handling (
            const gcry_error_t & err)
```

Auxiliary method to reinterpret libgcrypt errors as strings.

In most cases you do not need to call this method directly.

Parameters

err	libgcrypt error code (see `libgcrypt` documentation for details).

Returns

Human-readable string explaining error code.

4.6.2.18 open_book_callback()

```
void AuxFunc::open_book_callback (
            const std::filesystem::path & path)
```

Opens given file in default system application.

Parameters

path	absolute path to file to be opened.

4.6.2.19 randomFileName()

```
std::string AuxFunc::randomFileName ()
```

Returns random string.

Returns

Random string (it will look like "<random_hex_numbe>MLBookProc").

4.6.2.20 share_path()

```
std::filesystem::path AuxFunc::share_path ()
```

Returns absolute path to *share* directory, used by **MLBookProc**.

Result path is calculating as path relative to program executable file path ('absolute_path_to_executable_↩ file/../share').

Returns

Absolute path to *share* directory, used by **MLBookProc**.

4.6.2.21 stringToLower()

```
std::string AuxFunc::stringToLower (
            const std::string & line)
```

Converts all letters of the string to lowercase letters.

Parameters

line	UTF-8 encoded string to be converted to lowercase.

Returns

Lowercase string.

4.6.2.22 temp_path()

```
std::filesystem::path AuxFunc::temp_path ()
```

Returns absolute path to system temporary directory.

Returns

Absolute path to system temporary directory.

4.6.2.23 time_t_to_date()

```
std::string AuxFunc::time_t_to_date (
            const time_t & tt)
```

Converts time_t value to calendar date.

Parameters

tt	time_t value.

Returns

Date string (it will look like "<day_number>.<month_number>.<year>")

4.6.2.24 to_hex()

```
std::string AuxFunc::to_hex (
            const std::string & source)
```

Converts given string to hex format.

Each char element will be converted to two hexidecimal digits.

Parameters

source	string to be converted.

Returns

String in hex format.

4.6.2.25 to_utf_8()

```
std::string AuxFunc::to_utf_8 (
            const std::string & input,
            const char * conv_name)
```

Converts string to UTF-8 string.

Parameters

input	string to be converted.
conv_name	input string encoding name (see icu documentation for details).

Returns

UTF-8 encoded string or empty string in case of any error.

4.6.2.26 utf8_to_system()

```
std::string AuxFunc::utf8_to_system (
            const std::string & input)
```

Converts UTF-8 string to string in system default encoding.

Parameters

input	UTF-8 string to be converted.

Returns

String in system encoding or empty string in case of any error.

4.6.2.27 utf_8_to()

```
std::string AuxFunc::utf_8_to (
            const std::string & input,
            const char * conv_name)
```

Converts UTF-8 string to string in chosen encoding.

Parameters

input	string to be converted.
conv_name	output string encoding name (see `icu documentation` for details).

Returns

String in chosen encoding or empty string in case of any error.

4.7 BaseKeeper Class Reference

The BaseKeeper class.

`#include <BaseKeeper.h>`

Public Member Functions

- BaseKeeper (const std::shared_ptr< AuxFunc > &af)
  BaseKeeper constructor.
- virtual ~**BaseKeeper** ()
  BaseKeeper destructor.
- void loadCollection (const std::string &col_name)
  Loads collection database to memory.
- std::vector< BookBaseEntry > searchBook (const BookBaseEntry &search)
  Searches book in collection.
- std::vector< std::string > collectionAuthors ()
  Lists all authors, found in collection.
- std::vector< BookBaseEntry > booksWithNotes (const std::vector< NotesBaseEntry > &notes)
  Lists all books of current collection, which have notes.
- void **stopSearch** ()
  Stops all search operations.
- void **clearBase** ()
  Unloads collection base from memory.
- std::vector< FileParseEntry > get_base_vector ()
  Returns copy of inner database vector.

Static Public Member Functions

- static std::filesystem::path get_books_path (const std::string &collection_name, const std::shared_ptr< AuxFunc > &af)

  Returns absolute path to directory containing collection books.

Public Attributes

- std::function< void(const double &progr, const double &sz)> auth_show_progr

  collectionAuthors() progress callback

4.7.1 Detailed Description

The BaseKeeper class.

This class is intended to keep and operate collections databases. loadCollection() method should be called first.

4.7.2 Constructor & Destructor Documentation

4.7.2.1 BaseKeeper()

```
BaseKeeper::BaseKeeper (
            const std::shared_ptr< AuxFunc > & af)
```

BaseKeeper constructor.

Parameters

af	smart pointer to AuxFunc object.

4.7.3 Member Function Documentation

4.7.3.1 booksWithNotes()

```
std::vector< BookBaseEntry > BaseKeeper::booksWithNotes (
            const std::vector< NotesBaseEntry > & notes)
```

Lists all books of current collection, which have notes.

Parameters

notes	vector of notes (see NotesKeeper class documentation).

Returns

Vector of books with notes.

4.7.3.2 collectionAuthors()

```
std::vector< std::string > BaseKeeper::collectionAuthors ()
```

Lists all authors, found in collection.

Returns

Vector containing UTF-8 author's names strings.

4.7.3.3 get_base_vector()

```
std::vector< FileParseEntry > BaseKeeper::get_base_vector ()
```

Returns copy of inner database vector.

Returns

Database vector.

4.7.3.4 get_books_path()

```
static std::filesystem::path BaseKeeper::get_books_path (
            const std::string & collection_name,
            const std::shared_ptr< AuxFunc > & af)  [static]
```

Returns absolute path to directory containing collection books.

This method can be called without collection loading to memory.

Note

This method can throw MLException in case of errors.

Parameters

collection_name	collection name.
af	smart pointer to AuxFunc object.

Returns

Absolute path to books directory.

4.7.3.5 loadCollection()

```
void BaseKeeper::loadCollection (
            const std::string & col_name)
```

Loads collection database to memory.

Note

This method can throw MLException in case of errors.

Parameters

col_name	collection name.

4.7.3.6 searchBook()

```
std::vector< BookBaseEntry > BaseKeeper::searchBook (
            const BookBaseEntry & search)
```

Searches book in collection.

BookBaseEntry object must be provided as search request. It is necessary to fill in any field in the inner BookParseEntry object to receive particular result. Otherwise complete collection book list will be returned.

Parameters

search	BookBaseEntry object.

Returns

Vector of BookBaseEntry objects, containing search results.

4.7.4 Member Data Documentation

4.7.4.1 auth_show_progr

```
std::function<void(const double &progr, const double &sz)> BaseKeeper::auth_show_progr
```

collectionAuthors() progress callback

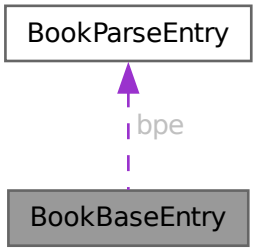
collectionAuthors() method execution can take some time. This callback indicates progress. *progr* is current progress in conventional units. *sz* is total conventional units to be processed.

4.8 BookBaseEntry Class Reference

The BookBaseEntry class.

```
#include <BookBaseEntry.h>
```

Collaboration diagram for BookBaseEntry:



Public Member Functions

- **BookBaseEntry** ()

  BookBaseEntry constructor.
- **BookBaseEntry** (const BookBaseEntry &other)

  BookBaseEntry copy constructor.
- **BookBaseEntry** (BookBaseEntry &&other)

  BookBaseEntry move constructor.
- BookBaseEntry & **operator=** (const BookBaseEntry &other)

  operator =
- BookBaseEntry & **operator=** (BookBaseEntry &&other)

  operator =
- bool **operator==** (const BookBaseEntry &other)

  operator ==
- BookBaseEntry (const BookParseEntry &bpe, const std::filesystem::path &book_file_path)

  BookBaseEntry constructor.

Public Attributes

- std::filesystem::path **file_path**

  Absolute path to book file or archive.
- BookParseEntry **bpe**

  BookParseEntry object.

4.8.1 Detailed Description

The BookBaseEntry class.

Auxiliary class, used to keep collections databases seacrh requests and search results.

4.8.2 Constructor & Destructor Documentation

4.8.2.1 BookBaseEntry()

```
BookBaseEntry::BookBaseEntry (
            const BookParseEntry & bpe,
            const std::filesystem::path & book_file_path)
```

BookBaseEntry constructor.

Parameters

bpe	BookParseEntry object.
book_file_path	absolute path to books file or archive.

4.9 BookInfo Class Reference

The BookInfo class.

```
#include <BookInfo.h>
```

Public Member Functions

- BookInfo (const std::shared_ptr< AuxFunc > &af)
  BookInfo constructor.
- std::shared_ptr< BookInfoEntry > get_book_info (const BookBaseEntry &bbe)
  Retruns information about book.
- void set_dpi (const double &h_dpi, const double &v_dpi)
  Sets DPI.

4.9.1 Detailed Description

The BookInfo class.

This class contains methods to get extra information (like annotation, cover, source paper book info, etc) from books.

4.9.2 Constructor & Destructor Documentation

4.9.2.1 BookInfo()

```
BookInfo::BookInfo (
            const std::shared_ptr< AuxFunc > & af)
```

BookInfo constructor.

Parameters

af	smart pointer to AuxFunc object.

4.9.3 Member Function Documentation

4.9.3.1 get_book_info()

```
std::shared_ptr< BookInfoEntry > BookInfo::get_book_info (
            const BookBaseEntry & bbe)
```

Retruns information about book.

See also set_dpi().

Parameters

bbe	search result, returned by BaseKeeper::searchBook() method.

Returns

Smart pointer to BookInfoEntry object containing various information about book.

4.9.3.2 set_dpi()

```
void BookInfo::set_dpi (
            const double & h_dpi,
            const double & v_dpi)
```

Sets DPI.

This method should be called before get_book_info(). It sets DPI to display books cover correctly. Default values are 72.0 and 72.0. It is not compulsory to call this method, but it is highly recommended.

Parameters

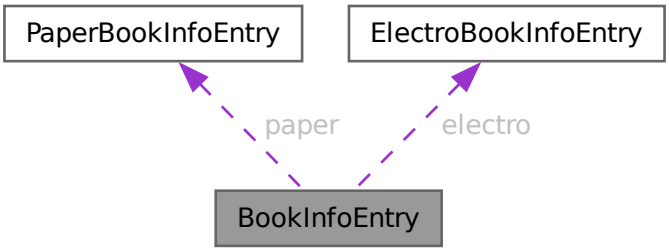
h_dpi	horizontal HREF="https://en.wikipedia.org/wiki/Dots_per_inch">DPI.
v_dpi	vertical HREF="https://en.wikipedia.org/wiki/Dots_per_inch">DPI.

4.10 BookInfoEntry Class Reference

The BookInfoEntry class.

```
#include <BookInfoEntry.h>
```

Collaboration diagram for BookInfoEntry:



Public Types

- enum cover_types {
  base64 , file , rgb , rgba ,
  error }
  The cover types enumerator.

Public Member Functions

- **BookInfoEntry** ()
  BookInfoEntry constructor.
- virtual ~**BookInfoEntry** ()
  BookInfoEntry destructor.
- **BookInfoEntry** (const BookInfoEntry &other)
  BookInfoEntry copy constructor.
- **BookInfoEntry** (BookInfoEntry &&other)
  BookInfoEntry move constructor.
- BookInfoEntry & **operator=** (const BookInfoEntry &other)
  operator =
- BookInfoEntry & **operator=** (BookInfoEntry &&other)
  operator =

Public Attributes

- std::string **annotation**
  Book annotation.
- std::string **cover**
  Book cover image.
- cover_types **cover_type** = cover_types::error
  Type of image.
- std::string **language**
  Book language.
- std::string **src_language**
  Language of book source.
- std::string **translator**
  Translator.
- PaperBookInfoEntry * **paper** = nullptr
  Pointer to PaperBookInfoEntry.
- ElectroBookInfoEntry * **electro** = nullptr
  Various technical information about book file. See ElectroBookInfoEntry.
- int **bytes_per_row** = 0
  Number of bytes per row for RGB and RGBA images.

4.10.1 Detailed Description

The BookInfoEntry class.

Auxiliary class keeping various extra information about book (see BookInfo).

4.10.2 Member Enumeration Documentation

4.10.2.1 cover_types

```
enum BookInfoEntry::cover_types
```

The cover types enumerator.

Enumerator

base64	base64 image
file	various image files formats, like JPG
rgb	RGB image
rgba	RGBA image
error	no image, default value

4.11 BookMarks Class Reference

The BookMarks class.

`#include <BookMarks.h>`

Public Member Functions

- BookMarks (const std::shared_ptr< AuxFunc > &af)
  BookMarks constructor.
- virtual ~**BookMarks** ()
  BookMarks destructor.
- int createBookMark (const std::string &col_name, const BookBaseEntry &bbe)
  Creates bookmark.
- std::vector< std::tuple< std::string, BookBaseEntry > > getBookMarks ()
  Returns bookmarks.
- void removeBookMark (const std::string &col_name, const BookBaseEntry &bbe)
  Removes bookmark.

4.11.1 Detailed Description

The BookMarks class.

This class keeps and operates collection bookmarks. Path to bookmarks base is "~/.local/share/MyLibrary/Book↩Marks/bookmarks".

4.11.2 Constructor & Destructor Documentation

4.11.2.1 BookMarks()

```
BookMarks::BookMarks (
            const std::shared_ptr< AuxFunc > & af)
```

BookMarks constructor.

Parameters

af	smart pointer to AuxFunc object.

4.11.3 Member Function Documentation

4.11.3.1 createBookMark()

```
int BookMarks::createBookMark (
            const std::string & col_name,
            const BookBaseEntry & bbe)
```

Creates bookmark.

If bookmark already exists, returns 0, in case of success returns 1, otherwise returns -1.

Parameters

col_name	collection name book came from.
bbe	BookBaseEntry got from BaseKeeper::searchBook().

Returns

Error code.

4.11.3.2 getBookMarks()

```
std::vector< std::tuple< std::string, BookBaseEntry > > BookMarks::getBookMarks ()
```

Returns bookmarks.

Returns

Vector of bookmarks tuples. First element of tuple is collection name, book came from. Second element is book entry.

4.11.3.3 removeBookMark()

```
void BookMarks::removeBookMark (
            const std::string & col_name,
            const BookBaseEntry & bbe)
```

Removes bookmark.

Parameters

col_name	collection name.
bbe	book entry to be removed.

4.12 BookParseEntry Class Reference

The BookParseEntry class.

```
#include <BookParseEntry.h>
```

Public Member Functions

- **BookParseEntry** ()

  BookParseEntry constructor.
- **BookParseEntry** (const BookParseEntry &other)

  BookParseEntry copy constructor.
- **BookParseEntry** (BookParseEntry &&other)

  BookParseEntry move constructor.
- BookParseEntry & **operator=** (const BookParseEntry &other)

  operator =
- BookParseEntry & **operator=** (BookParseEntry &&other)

  operator =
- bool **operator==** (const BookParseEntry &other)

  operator ==

Public Attributes

- std::string book_path

  Path to book in file (in case of archive, empty otherwise).
- std::string **book_author**

  Book author (if any, empty otherwise).
- std::string book_name

  Book name.
- std::string **book_series**

  Book series (if any, empty otherwise).
- std::string book_genre

  Book genres(s) (if any, empty otherwise).
- std::string **book_date**

  Book creation date (if available in metadata, empty otherwise).

4.12.1 Detailed Description

The BookParseEntry class.

Auxiliary class keeping relative path to book in file (in case of archive, empty otherwise), book author(s), book name, book series, book genre(s), date of book creation (if available).

4.12.2 Member Data Documentation

4.12.2.1 book_genre

```
std::string BookParseEntry::book_genre
```

Book genres(s) (if any, empty otherwise).

List of genres separated by ", " sequence.

4.12.2.2 book_name

```
std::string BookParseEntry::book_name
```

Book name.

Must not be empty. If book name cannot be obtained from book metadata, book file name will be used.

4.12.2.3 book_path

```
std::string BookParseEntry::book_path
```

Path to book in file (in case of archive, empty otherwise).

In case of "archive inside archive" situation "\n" (ASCII new line) symbol used as separator. It means that path to book inside archive looks like "<archive_one>\n<archive_two>\n<archive_three>\n<book_file>" or "<archive↩_one>\n<book_file>".

4.13 ByteOrder Class Reference

The ByteOrder class.

```
#include <ByteOrder.h>
```

Public Member Functions

- **ByteOrder** ()
  ByteOrder constructor.
- virtual ~**ByteOrder** ()
  ByteOrder destructor.
- **ByteOrder** (const ByteOrder &other)
  ByteOrder copy constructor.
- ByteOrder (uint64_t val)
  ByteOrder constructor.
- ByteOrder (uint32_t val)
  ByteOrder constructor.
- ByteOrder (uint16_t val)
  ByteOrder constructor.
- ByteOrder (int64_t val)
  ByteOrder constructor.
- ByteOrder (int32_t val)
  ByteOrder constructor.
- ByteOrder (int16_t val)
  ByteOrder constructor.
- ByteOrder (float val)
  ByteOrder constructor.
- ByteOrder (double val)
  ByteOrder constructor.
- ByteOrder & **operator=** (const ByteOrder &other)

operator =

- ByteOrder & operator= (const uint64_t &val)

  operator =

- ByteOrder & operator= (const uint32_t &val)

  operator =

- ByteOrder & operator= (const uint16_t &val)

  operator =

- ByteOrder & operator= (const int64_t &val)

  operator =

- ByteOrder & operator= (const int32_t &val)

  operator =

- ByteOrder & operator= (const int16_t &val)

  operator =

- ByteOrder & operator= (const float &val)

  operator =

- ByteOrder & operator= (const double &val)

  operator =

- **operator uint64_t** ()

  Returns number in native byte order.

- **operator uint32_t** ()

  Returns number in native byte order.

- **operator uint16_t** ()

  Returns number in native byte order.

- **operator int64_t** ()

  Returns number in native byte order.

- **operator int32_t** ()

  Returns number in native byte order.

- **operator int16_t** ()

  Returns number in native byte order.

- **operator float** ()

  Returns number in native byte order.

- **operator double** ()

  Returns number in native byte order.

- template<typename T>
  void get_native (T &result)

  Returns number in native byte order.

- template<typename T>
  void get_big (T &result)

  Returns "big endian" number.

- template<typename T>
  void get_little (T &result)

  Returns "little endian" number.

- template<typename T>
  void set_big (T val)

  Sets inner value to val.

- template<typename T>
  void set_little (T val)

  Sets inner value to val.

4.13.1 Detailed Description

The ByteOrder class.

Auxiliary class. Is used to convert numbers to different byte orders.

Warning

If you get number from ByteOrder, resulting number must have same type as input value, otherwise behavior is undefined.

4.13.2 Constructor & Destructor Documentation

4.13.2.1 ByteOrder() [1/8]

```
ByteOrder::ByteOrder (
            uint64_t val)
```

ByteOrder constructor.

Parameters

val	value in native byte order.

4.13.2.2 ByteOrder() [2/8]

```
ByteOrder::ByteOrder (
            uint32_t val)
```

ByteOrder constructor.

Parameters

val	value in native byte order.

4.13.2.3 ByteOrder() [3/8]

```
ByteOrder::ByteOrder (
            uint16_t val)
```

ByteOrder constructor.

Parameters

val	value in native byte order.

4.13.2.4 ByteOrder() [4/8]

```
ByteOrder::ByteOrder (
            int64_t val)
```

ByteOrder constructor.

Parameters

val	value in native byte order.

4.13.2.5 ByteOrder() [5/8]

```
ByteOrder::ByteOrder (
            int32_t val)
```

ByteOrder constructor.

Parameters

val	value in native byte order.

4.13.2.6 ByteOrder() [6/8]

```
ByteOrder::ByteOrder (
            int16_t val)
```

ByteOrder constructor.

Parameters

val	value in native byte order.

4.13.2.7 ByteOrder() [7/8]

```
ByteOrder::ByteOrder (
            float val)
```

ByteOrder constructor.

Parameters

val	value in native byte order.

4.13.2.8 ByteOrder() [8/8]

```
ByteOrder::ByteOrder (
            double val)
```

ByteOrder constructor.

Parameters

val	value in native byte order.

4.13.3 Member Function Documentation

4.13.3.1 get_big()

```
template<typename T>
void ByteOrder::get_big (
            T & result)
```

Returns "big endian" number.

Parameters

result	resulting number.

4.13.3.2 get_little()

```
template<typename T>
void ByteOrder::get_little (
            T & result)
```

Returns "little endian" number.

Parameters

result	resulting number.

4.13.3.3 get_native()

```
template<typename T>
void ByteOrder::get_native (
            T & result)
```

Returns number in native byte order.

Parameters

result	resulting number.

4.13.3.4 operator=() [1/8]

```
ByteOrder & ByteOrder::operator= (
            const double & val)
```

operator =

Parameters

val	value in native byte order.

4.13.3.5 operator=() [2/8]

```
ByteOrder & ByteOrder::operator= (
            const float & val)
```

operator =

Parameters

val	value in native byte order.

4.13.3.6 operator=() [3/8]

```
ByteOrder & ByteOrder::operator= (
            const int16_t & val)
```

operator =

Parameters

val	value in native byte order.

4.13.3.7 operator=() [4/8]

```
ByteOrder & ByteOrder::operator= (
            const int32_t & val)
```

operator =

Parameters

val	value in native byte order.

4.13.3.8 operator=() [5/8]

```
ByteOrder & ByteOrder::operator= (
            const int64_t & val)
```

operator =

Parameters

val	value in native byte order.

4.13.3.9 operator=() [6/8]

```
ByteOrder & ByteOrder::operator= (
            const uint16_t & val)
```

operator =

Parameters

val	value in native byte order.

4.13.3.10 operator=() [7/8]

```
ByteOrder & ByteOrder::operator= (
            const uint32_t & val)
```

operator =

Parameters

val	value in native byte order.

4.13.3.11 operator=() [8/8]

```
ByteOrder & ByteOrder::operator= (
            const uint64_t & val)
```

operator =

Parameters

val	value in native byte order.

4.13.3.12 set_big()

```
template<typename T>
void ByteOrder::set_big (
            T val)
```

Sets inner value to val.

Sets inner value to val. val will be processed as "big endian".

Parameters

val	value to be set.

4.13.3.13 set_little()

```
template<typename T>
void ByteOrder::set_little (
            T val)
```

Sets inner value to val.

Sets inner value to val. val will be processed as "little endian".

Parameters

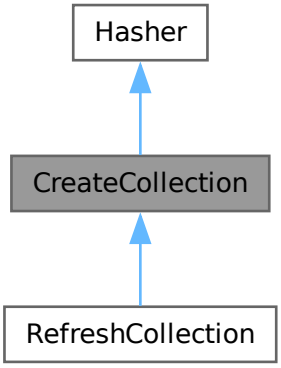
val	value to be set.

4.14 CreateCollection Class Reference

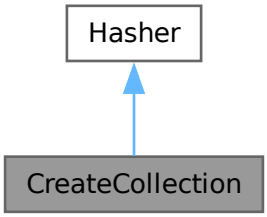
The CreateCollection class.

`#include <CreateCollection.h>`

Inheritance diagram for CreateCollection:



Collaboration diagram for CreateCollection:



Public Member Functions

- CreateCollection (const std::shared_ptr< AuxFunc > &af, const std::filesystem::path &collection_path, const std::filesystem::path &books_path, const bool &rar_support, const int &num_threads)

  CreateCollection constructor.
- virtual ~**CreateCollection** ()

  CreateCollection destructor.
- void createCollection ()

  Starts collection creation.

Public Member Functions inherited from Hasher

- Hasher (const std::shared_ptr< AuxFunc > &af)

  Hasher constructor.
- std::string buf_hashing (const std::string &buf)

  Creates hash sum for given buffer.
- std::string file_hashing (const std::filesystem::path &filepath)

  Creates hash sum for given file.
- void **cancelAll** ()

  Stops all operations.

Public Attributes

- std::function< void()> pulse

  "Pulse" callback.
- std::function< void(const double &)> signal_total_bytes

  "Total bytes" callback.
- std::function< void(const double &progress)> progress

  "Progress" callback.

Protected Member Functions

- CreateCollection (const std::shared_ptr< AuxFunc > &af, const int &num_threads)

  CreateCollection constructor.
- void threadRegulator ()

  Threads regulator.
- void openBaseFile ()

  Opens database file for writing.
- void closeBaseFile ()

  Finishes database writing.
- void write_file_to_base (const FileParseEntry &fe)

  Writes file data to database.

Protected Attributes

- std::filesystem::path base_path

  Absolute path to database.
- std::filesystem::path books_path

  Absolute path to books directory.
- bool rar_support = false

  If true, rar archives will be processed, otherwise - not.
- std::vector< std::tuple< std::filesystem::path, std::string > > already_hashed

  Hashed files.
- std::vector< std::filesystem::path > need_to_parse

  "Need to parse" vector.
- std::atomic< double > current_bytes

  Keeps quantity of bytes have been processed.

Protected Attributes inherited from Hasher

- std::atomic< bool > cancel

  Stops all operations if true.
- std::function< void()> stop_all_signal

  Stop signal for heir classes.

4.14.1 Detailed Description

The CreateCollection class.

This class containes methods for collection database creation.

4.14.2 Constructor & Destructor Documentation

4.14.2.1 CreateCollection() [1/2]

```
CreateCollection::CreateCollection (
            const std::shared_ptr< AuxFunc > & af,
            const std::filesystem::path & collection_path,
            const std::filesystem::path & books_path,
            const bool & rar_support,
            const int & num_threads)
```

CreateCollection constructor.

Parameters

af	smart pointer to AuxFunc object.
collection_path	absolute path to collection base directory (if it doesnt exsist, **MLBookProc** will create it).
books_path	absolute path to books directory.
rar_support	if *true*, rar archives will be processed, otherwise - not (some rar archives can cause errors).
num_threads	limit of working threads to be used.

4.14.2.2 CreateCollection() [2/2]

```
CreateCollection::CreateCollection (
            const std::shared_ptr< AuxFunc > & af,
            const int & num_threads)  [protected]
```

CreateCollection constructor.

Warning

Do not call this constructor yourself!

This constructor is used by RefreshCollection class.

Parameters

af	smart pointer to AuxFunc object.
num_threads	limit of working threads to be used.

4.14.3 Member Function Documentation

4.14.3.1 closeBaseFile()

```
void CreateCollection::closeBaseFile ()  [protected]
```

Finishes database writing.

Warning

Do not call this method yourself!

4.14.3.2 createCollection()

```
void CreateCollection::createCollection ()
```

Starts collection creation.

Note

This method can throw MLException in case of errors.

4.14.3.3 openBaseFile()

```
void CreateCollection::openBaseFile ()  [protected]
```

Opens database file for writing.

Warning

Do not call this method yourself!

4.14.3.4 threadRegulator()

```
void CreateCollection::threadRegulator ()  [protected]
```

Threads regulator.

Warning

Do not call this method yourself!

4.14.3.5 write_file_to_base()

```
void CreateCollection::write_file_to_base (
            const FileParseEntry & fe)  [protected]
```

Writes file data to database.

Warning

Do not call this method yourself!

Parameters

fe	FileParseEntry object.

4.14.4 Member Data Documentation

4.14.4.1 already_hashed

```
std::vector<std::tuple<std::filesystem::path, std::string> > CreateCollection::already_hashed
[protected]
```

Hashed files.

This vector is used by RefreshCollection class to indicate files, has been already hashed.

Warning

Do not call or set this vector yourself!

4.14.4.2 base_path

```
std::filesystem::path CreateCollection::base_path  [protected]
```

Absolute path to database.

Warning

Do not call or set this variable yourself!

4.14.4.3 books_path

```
std::filesystem::path CreateCollection::books_path  [protected]
```

Absolute path to books directory.

Warning

Do not call or set this variable yourself!

4.14.4.4 current_bytes

```
std::atomic<double> CreateCollection::current_bytes  [protected]
```

Keeps quantity of bytes have been processed.

Warning

Do not call or set this variable yourself!

4.14.4.5 need_to_parse

```
std::vector<std::filesystem::path> CreateCollection::need_to_parse  [protected]
```

"Need to parse" vector.

This vector is used to indicate files, needed to be parsed.

Warning

Do not call or set this vector yourself!

4.14.4.6 progress

```
std::function<void(const double &progress)> CreateCollection::progress
```

"Progress" callback.

Emitted after each file processing completion. Indicates total quantity of bytes has been processed. Bind your method to it, if you need such information.

4.14.4.7 pulse

```
std::function<void()> CreateCollection::pulse
```

"Pulse" callback.

Emitted while preliminary files collecting to show that process is not frozen. Bind your method to it, if you need such information.

4.14.4.8 rar_support

```
bool CreateCollection::rar_support = false  [protected]
```

If *true*, rar archives will be processed, otherwise - not.

Warning

Do not call or set this variable yourself!

4.14.4.9 signal_total_bytes

```
std::function<void(const double &)> CreateCollection::signal_total_bytes
```

"Total bytes" callback.

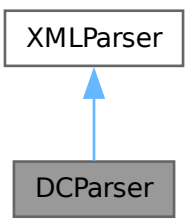
Emitted after preliminary files collecting completed to indicate total quantity of bytes to be processed. Bind your method to it, if you need such information.

4.15 DCParser Class Reference

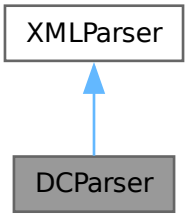
The DCParser class.

```
#include <DCParser.h>
```

Inheritance diagram for DCParser:



Collaboration diagram for DCParser:



Public Member Functions

- DCParser (const std::shared_ptr< AuxFunc > &af)
  DCParser constructor.
- std::string dcTitle (const std::string &dc_file_content, const std::vector< XMLTag > &tgv)
  Gets book title.
- std::string dcAuthor (const std::string &dc_file_content, const std::vector< XMLTag > &tgv)
  Gets book author.
- std::string dcGenre (const std::string &dc_file_content, const std::vector< XMLTag > &tgv)
  Gets book genre.
- std::string dcDate (const std::string &dc_file_content, const std::vector< XMLTag > &tgv)
  Gets book creation date.
- std::string dcLanguage (const std::string &dc_file_content, const std::vector< XMLTag > &tgv)
  Gets book language.
- std::string dcPublisher (const std::string &dc_file_content, const std::vector< XMLTag > &tgv)
  Gets file publisher.
- std::string dcIdentifier (const std::string &dc_file_content, const std::vector< XMLTag > &tgv)
  Gets book identifier.
- std::string dcSource (const std::string &dc_file_content, const std::vector< XMLTag > &tgv)
  Gets book source.
- std::string dcDescription (const std::string &dc_file_content, const std::vector< XMLTag > &tgv)
  Gets book description.

Public Member Functions inherited from XMLParser

- XMLParser (const std::shared_ptr< AuxFunc > &af)
  XMLParser constructor.
- std::vector< XMLTag > get_tag (const std::string &book, const std::string &tag_id)
  Returns all tags with particular name.
- std::string get_book_encoding (const std::string &book)
  Returns XML document encoding.
- std::string get_element_attribute (const std::string &element, const std::string &attr_name)
  Returns XML tag attribute if it was found.
- std::vector< XMLTag > listAllTags (const std::string &book)

Parses XML document.

- void searchTag (const std::vector< XMLTag > &list, const std::string &tag_id, std::vector< XMLTag > &result)

  Searches tag in tag list.
- void htmlSymbolsReplacement (std::string &book)

  Replaces symbols encoded by "&..." sequences.
- void removeAllTags (std::string &book)

  Removes all tag elements from XML document.

4.15.1 Detailed Description

The DCParser class.

Auxiliary class. Contains methods for DublinCore files parsing. This class is used in ODTParser and EPUBParser. You do not need to call this class methods directly.

4.15.2 Constructor & Destructor Documentation

4.15.2.1 DCParser()

```
DCParser::DCParser (
            const std::shared_ptr< AuxFunc > & af)
```

DCParser constructor.

Parameters

af	smart pointer to AuxFunc object.

4.15.3 Member Function Documentation

4.15.3.1 dcAuthor()

```
std::string DCParser::dcAuthor (
            const std::string & dc_file_content,
            const std::vector< XMLTag > & tgv)
```

Gets book author.

This method can be used to get author(s) from DublinCore file.

Parameters

dc_file_content	string containing file content.
tgv	XMLTag vector obtained from XMLParser::listAllTags method.

Returns

Author if any, empty string otherwise.

4.15.3.2 dcDate()

```
std::string DCParser::dcDate (
            const std::string & dc_file_content,
            const std::vector< XMLTag > & tgv)
```

Gets book creation date.

This method can be used to get creation date from DublinCore file.

Parameters

dc_file_content	string containing file content.
tgv	XMLTag vector obtained from XMLParser::listAllTags method.

Returns

File creation date if any, empty otherwise.

4.15.3.3 dcDescription()

```
std::string DCParser::dcDescription (
            const std::string & dc_file_content,
            const std::vector< XMLTag > & tgv)
```

Gets book description.

This method can be used to get book description from DublinCore file.

Parameters

dc_file_content	string containing file content.
tgv	XMLTag vector obtained from XMLParser::listAllTags method.

Returns

Book description if any, empty otherwise.

4.15.3.4 dcGenre()

```
std::string DCParser::dcGenre (
            const std::string & dc_file_content,
            const std::vector< XMLTag > & tgv)
```

Gets book genre.

This method can be used to get genre(s) from DublinCore file.

Parameters

dc_file_content	string containing file content.
tgv	XMLTag vector obtained from XMLParser::listAllTags method.

Returns

Gernre if any, empty string otherwise.

4.15.3.5 dcIdentifier()

```
std::string DCParser::dcIdentifier (
            const std::string & dc_file_content,
            const std::vector< XMLTag > & tgv)
```

Gets book identifier.

This method can be used to get identifier from DublinCore file.

Parameters

dc_file_content	string containing file content.
tgv	XMLTag vector obtained from XMLParser::listAllTags method.

Returns

Book identifier if any, empty otherwise.

4.15.3.6 dcLanguage()

```
std::string DCParser::dcLanguage (
            const std::string & dc_file_content,
            const std::vector< XMLTag > & tgv)
```

Gets book language.

This method can be used to get language from DublinCore file.

Parameters

dc_file_content	string containing file content.
tgv	XMLTag vector obtained from XMLParser::listAllTags method.

Returns

File language if set, empty otherwise.

4.15.3.7 dcPublisher()

```
std::string DCParser::dcPublisher (
            const std::string & dc_file_content,
            const std::vector< XMLTag > & tgv)
```

Gets file publisher.

This method can be used to get publisher from DublinCore file.

Parameters

dc_file_content	string containing file content.
tgv	XMLTag vector obtained from XMLParser::listAllTags method.

Returns

File publisher if set, empty otherwise.

4.15.3.8 dcSource()

```
std::string DCParser::dcSource (
            const std::string & dc_file_content,
            const std::vector< XMLTag > & tgv)
```

Gets book source.

This method can be used to get book source from DublinCore file.

Parameters

dc_file_content	string containing file content.
tgv	XMLTag vector obtained from XMLParser::listAllTags method.

Returns

Book source if set, empty otherwise.

4.15.3.9 dcTitle()

```
std::string DCParser::dcTitle (
            const std::string & dc_file_content,
            const std::vector< XMLTag > & tgv)
```

Gets book title.

This method can be used to get title from `DublinCore` file.

Parameters

dc_file_content	string containing file content.
tgv	XMLTag vector obtained from XMLParser::listAllTags method.

Returns

Title if any, empty string otherwise.

4.16 DJVUParser Class Reference

The DJVUParser class.

`#include <DJVUParser.h>`

Public Member Functions

- DJVUParser (const std::shared_ptr< AuxFunc > &af)
  DJVUParser constructor.
- BookParseEntry djvu_parser (const std::filesystem::path &filepath)
  Parses djvu book.
- std::shared_ptr< BookInfoEntry > djvu_book_info (const std::filesystem::path &filepath)
  Returns book info and book cover.

4.16.1 Detailed Description

The DJVUParser class.

This class contains various methods for djvu books processing. In most cases you do not need to use this class directly. Use CreateCollection, RefreshCollection and BookInfo instead.

4.16.2 Constructor & Destructor Documentation

4.16.2.1 DJVUParser()

```
DJVUParser::DJVUParser (
            const std::shared_ptr< AuxFunc > & af)
```

DJVUParser constructor.

Parameters

af	smart pointer to AuxFunc object.

4.16.3 Member Function Documentation

4.16.3.1 djvu_book_info()

```
std::shared_ptr< BookInfoEntry > DJVUParser::djvu_book_info (
            const std::filesystem::path & filepath)
```

Returns book info and book cover.

Parameters

filepath	absolute path to djvu book.

Returns

Smart pointer to BookInfoEntry object.

4.16.3.2 djvu_parser()

```
BookParseEntry DJVUParser::djvu_parser (
            const std::filesystem::path & filepath)
```

Parses djvu book.

Parameters

filepath	absolute path to djvu book.

Returns

BookParseEntry object.

4.17 ElectroBookInfoEntry Class Reference

The ElectroBookInfoEntry class.

`#include <ElectroBookInfoEntry.h>`

Public Member Functions

- **ElectroBookInfoEntry** ()

  ElectroBookInfoEntry constructor.
- **ElectroBookInfoEntry** (const ElectroBookInfoEntry &other)

  ElectroBookInfoEntry copy constructor.
- **ElectroBookInfoEntry** (ElectroBookInfoEntry &&other)

  ElectroBookInfoEntry move constructor.
- ElectroBookInfoEntry & **operator=** (const ElectroBookInfoEntry &other)

  operator =
- ElectroBookInfoEntry & **operator=** (ElectroBookInfoEntry &&other)

  operator =

Public Attributes

- bool **available** = false

  Indicates if any information is available.
- std::string **author**

  Author of file.
- std::string **program_used**

  Program used to create file.
- std::string **date**

  Date of file creation.
- std::string **src_url**

  Source URL if this document is a conversion of some other (online) document.
- std::string **src_ocr**

  Author of the original (online) document, if this is a conversion.
- std::string **id**

  Unique file identifier.
- std::string **version**

  File version.
- std::string **history**

  History of file changes.
- std::string **publisher**

  File publisher.

4.17.1 Detailed Description

The ElectroBookInfoEntry class.

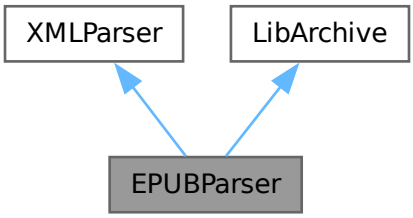
Auxiliary class containing various technical info about digital book file.

4.18 EPUBParser Class Reference

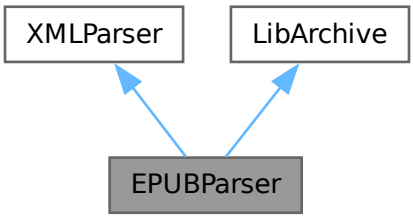
The EPUBParser class.

`#include <EPUBParser.h>`

Inheritance diagram for EPUBParser:



Collaboration diagram for EPUBParser:



Public Member Functions

- EPUBParser (const std::shared_ptr< AuxFunc > &af)

  EPUBParser constructor.
- virtual ~**EPUBParser** ()

  EPUBParser destructor.
- BookParseEntry epub_parser (const std::filesystem::path &filepath)

  Parses epub book.
- std::shared_ptr< BookInfoEntry > epub_book_info (const std::filesystem::path &filepath)

  Returns epub book info and cover.

Public Member Functions inherited from XMLParser

- XMLParser (const std::shared_ptr< AuxFunc > &af)

  XMLParser constructor.
- std::vector< XMLTag > get_tag (const std::string &book, const std::string &tag_id)

  Returns all tags with particular name.
- std::string get_book_encoding (const std::string &book)

  Returns XML document encoding.
- std::string get_element_attribute (const std::string &element, const std::string &attr_name)

  Returns XML tag attribute if it was found.
- std::vector< XMLTag > listAllTags (const std::string &book)

  Parses XML document.
- void searchTag (const std::vector< XMLTag > &list, const std::string &tag_id, std::vector< XMLTag > &result)

  Searches tag in tag list.
- void htmlSymbolsReplacement (std::string &book)

  Replaces symbols encoded by "&..." sequences.
- void removeAllTags (std::string &book)

  Removes all tag elements from XML document.

Public Member Functions inherited from LibArchive

- LibArchive (const std::shared_ptr< AuxFunc > &af)

  LibArchive constructor.
- std::filesystem::path unpackByPosition (const std::filesystem::path &archaddress, const std::filesystem::path &outfolder, const ArchEntry &entry)

  Unpacks single entry content from zip archive.
- std::string unpackByPositionStr (const std::filesystem::path &archaddress, const ArchEntry &entry)

  Unpacks single entry content from zip archive.
- std::filesystem::path unpackByFileNameStream (const std::filesystem::path &archaddress, const std::filesystem::path &outfolder, const std::string &filename)

  Unpacks entry content from archive.
- std::string unpackByFileNameStreamStr (const std::filesystem::path &archaddress, const std::string &filename)

  Unpacks entry content from archive.
- int fileNames (const std::filesystem::path &filepath, std::vector< ArchEntry > &filenames)

  Lists all entries in archive file.
- int fileNamesStream (const std::filesystem::path &address, std::vector< ArchEntry > &filenames)

  Lists all entries in archive file.
- ArchEntry fileinfo (const std::filesystem::path &address, const std::string &filename)

  Returns ArchEntry for particular file or directory in archive.
- int libarchive_packing (const std::filesystem::path &sourcepath, const std::filesystem::path &outpath)

  Packs file or directory into archive.
- int libarchive_packing (const std::shared_ptr< archive > &a, const std::filesystem::path &sourcepath, const bool &rename_source, const std::string &new_source_name)

  Packs file or directory into archive.
- ArchiveRemoveEntry libarchive_remove_init (const std::filesystem::path &sourcepath, const std::filesystem::path &outpath)

  Initializes archive objects for removing entries from archive.
- int libarchive_remove_entry (ArchiveRemoveEntry rm_e, const std::vector< ArchEntry > &to_remove)

  Removes entry from archive.

- void libarchive_error (const std::shared_ptr< archive > &a, const std::string &message, const int &error_↩ number)

  Prints libarchive error messages.
- std::string libarchive_read_entry_str (archive *a, archive_entry *entry)

  Reads archived file to stirng.
- int libarchive_write_data (archive *a, const std::string &data)

  Writes data to archive.
- std::shared_ptr< ArchiveFileEntry > createArchFile (const std::filesystem::path &archaddress, const la_↩ int64_t &position=la_int64_t(0))

  Creates ArchiveFileEntry object.
- std::shared_ptr< archive > libarchive_read_init (std::shared_ptr< ArchiveFileEntry > fl)

  Initializes archive reading.
- std::shared_ptr< archive > libarchive_read_init_fallback (std::shared_ptr< ArchiveFileEntry > fl)

  Initializes archive reading.
- std::filesystem::path libarchive_read_entry (archive *a, archive_entry *entry, const std::filesystem::path &out-folder)

  Unpacks libarchive entry content.
- std::shared_ptr< archive > libarchive_write_init (const std::filesystem::path &outpath)

  Initializes writing to archive.
- int writeToArchive (std::shared_ptr< archive > a, const std::filesystem::path &source, const std::filesystem↩ ::path &path_in_arch)

  Writes file or directory to archive.
- int libarchive_write_directory (archive *a, archive_entry *entry, const std::filesystem::path &path_in_arch, const std::filesystem::path &source)

  Writes directory to archive.
- int libarchive_write_file (archive *a, archive_entry *entry, const std::filesystem::path &path_in_arch, const std::filesystem::path &source)

  Writes file to archive.
- int libarchive_write_data_from_file (archive *a, const std::filesystem::path &source)

  Writes raw data from file to archive.

4.18.1 Detailed Description

The EPUBParser class.

This class contains various methods for epub books parsing. In most cases you do not need to use this class directly. Use CreateCollection, RefreshCollection and BookInfo instead.

4.18.2 Constructor & Destructor Documentation

4.18.2.1 EPUBParser()

```
EPUBParser::EPUBParser (
            const std::shared_ptr< AuxFunc > & af)
```

EPUBParser constructor.

Parameters

af	smart pointer to AuxFunc object.

4.18.3 Member Function Documentation

4.18.3.1 epub_book_info()

```
std::shared_ptr< BookInfoEntry > EPUBParser::epub_book_info (
            const std::filesystem::path & filepath)
```

Returns epub book info and cover.

Parameters

filepath	absolute path to epub file.

Returns

Smart pointer to BookInfoEntry object.

4.18.3.2 epub_parser()

```
BookParseEntry EPUBParser::epub_parser (
            const std::filesystem::path & filepath)
```

Parses epub book.

Parameters

filepath	absolute path to epub file.

Returns

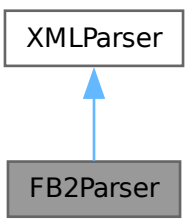
BookParseEntry object.

4.19 FB2Parser Class Reference

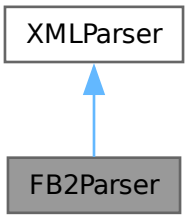
The FB2Parser class.

```
#include <FB2Parser.h>
```

Inheritance diagram for FB2Parser:



Collaboration diagram for FB2Parser:



Public Member Functions

- FB2Parser (const std::shared_ptr< AuxFunc > &af)
  FB2Parser constructor.
- BookParseEntry fb2_parser (const std::string &book)
  Parses fb2 book.
- std::shared_ptr< BookInfoEntry > fb2_book_info (const std::string &book)
  Returns fb2 book info and cover.

Public Member Functions inherited from XMLParser

- XMLParser (const std::shared_ptr< AuxFunc > &af)
  XMLParser constructor.
- std::vector< XMLTag > get_tag (const std::string &book, const std::string &tag_id)
  Returns all tags with particular name.
- std::string get_book_encoding (const std::string &book)
  Returns XML document encoding.
- std::string get_element_attribute (const std::string &element, const std::string &attr_name)
  Returns XML tag attribute if it was found.
- std::vector< XMLTag > listAllTags (const std::string &book)
  Parses XML document.
- void searchTag (const std::vector< XMLTag > &list, const std::string &tag_id, std::vector< XMLTag > &result)
  Searches tag in tag list.
- void htmlSymbolsReplacement (std::string &book)
  Replaces symbols encoded by "&..." sequences.
- void removeAllTags (std::string &book)
  Removes all tag elements from XML document.

4.19.1 Detailed Description

The FB2Parser class.

This class contains various methods for fb2 books parsing. In most cases you do not need to use this class directly. Use CreateCollection, RefreshCollection and BookInfo instead.

4.19.2 Constructor & Destructor Documentation

4.19.2.1 FB2Parser()

```
FB2Parser::FB2Parser (
            const std::shared_ptr< AuxFunc > & af)
```

FB2Parser constructor.

Parameters

af	smart pointer to AuxFunc object.

4.19.3 Member Function Documentation

4.19.3.1 fb2_book_info()

```
std::shared_ptr< BookInfoEntry > FB2Parser::fb2_book_info (
            const std::string & book)
```

Returns fb2 book info and cover.

Parameters

book	fb2 books file content.

Returns

Smart poiner to BookInfoEntry object.

4.19.3.2 fb2_parser()

```
BookParseEntry FB2Parser::fb2_parser (
            const std::string & book)
```

Parses fb2 book.

Note

This method can throw MLException object in case of any errors.

Parameters

book	fb2 file content.

Returns

BookParseEntry object.

4.20 FileParseEntry Class Reference

The FileParseEntry class.

`#include <FileParseEntry.h>`

Public Member Functions

- **FileParseEntry** ()
  FileParseEntry constructor.
- **FileParseEntry** (const FileParseEntry &other)
  FileParseEntry copy constructor.
- **FileParseEntry** (FileParseEntry &&other)
  FileParseEntry move constructor.
- FileParseEntry & **operator=** (const FileParseEntry &other)
  operator =
- FileParseEntry & **operator=** (FileParseEntry &&other)
  operator =

Public Attributes

- std::string file_rel_path
  Relative path to file in collection.
- std::string file_hash
  File hash sum.
- std::vector< BookParseEntry > books
  Contains books info.

4.20.1 Detailed Description

The FileParseEntry class.

Auxiliary class, used in CreateCollection, RefreshCollection and BaseKeeper. Contains collection file info.

4.20.2 Member Data Documentation

4.20.2.1 books

`std::vector<BookParseEntry> FileParseEntry::books`

Contains books info.

Vector containing information about books in file.

4.20.2.2 file_hash

`std::string FileParseEntry::file_hash`

File hash sum.

Blake-256 algorithm currently used.

4.20.2.3 file_rel_path

`std::string FileParseEntry::file_rel_path`

Relative path to file in collection.

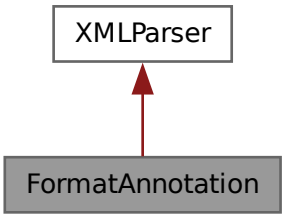
Path is relative to collection directory path.

4.21 FormatAnnotation Class Reference

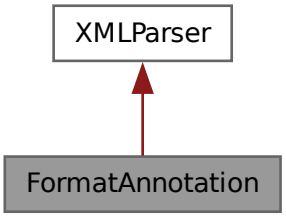
The FormatAnnotation class.

`#include <FormatAnnotation.h>`

Inheritance diagram for FormatAnnotation:



Collaboration diagram for FormatAnnotation:



Public Member Functions

- FormatAnnotation (const std::shared_ptr< AuxFunc > &af)

  FormatAnnotation constructor.
- void remove_escape_sequences (std::string &annotation)

  Removes escape sequences from annotation.
- void replace_tags (std::string &annotation)

  Replaces XML tags.
- void final_cleaning (std::string &annotation)

  Cleans some sequences from annotation.
- void removeAllTags (std::string &annotation)

  Simply removes all XML tags.
- void setTagReplacementTable (const std::vector< ReplaceTagItem > &replacement_table)

  Sets tag replacement table.

4.21.1 Detailed Description

The FormatAnnotation class.

This class contains different methods for annotation processing.

4.21.2 Constructor & Destructor Documentation

4.21.2.1 FormatAnnotation()

```
FormatAnnotation::FormatAnnotation (
            const std::shared_ptr< AuxFunc > & af)
```

FormatAnnotation constructor.

Parameters

af	smart pointer to AuxFunc object.

4.21.3 Member Function Documentation

4.21.3.1 final_cleaning()

```
void FormatAnnotation::final_cleaning (
            std::string & annotation)
```

Cleans some sequences from annotation.

Replaces "three spaces" by "two spaces" at the annotation beginning, removes "\n" from annotation beginning, removes 0 - 32 ASCII symbols from the annotation end. Also replaces "\n\n\n" sequences by "\n\n" in whole annotation.

Parameters

annotation	UTF-8 annotation content string.

4.21.3.2 remove_escape_sequences()

```
void FormatAnnotation::remove_escape_sequences (
            std::string & annotation)
```

Removes escape sequences from annotation.

Removes ASCII symbols 0 to 31 (inclusive) from annotation. Only exception is symbol 9 (horizontal tab). It will be replaced by 32 (space). Also removes extra spaces from annotation beginning.

Parameters

annotation	UTF-8 annotation content string.

4.21.3.3 removeAllTags()

```
void FormatAnnotation::removeAllTags (
            std::string & annotation)
```

Simply removes all XML tags.

Parameters

annotation	UTF-8 annotation content string.

4.21.3.4 replace_tags()

```
void FormatAnnotation::replace_tags (
            std::string & annotation)
```

Replaces XML tags.

It is highly recommended to call setTagReplacementTable() method before this method call (but it is not compulsory). If tag replacement table is empty, all tags will be just removed.

Parameters

annotation	UTF-8 annotation content string.

4.21.3.5 setTagReplacementTable()

```
void FormatAnnotation::setTagReplacementTable (
            const std::vector< ReplaceTagItem > & replacement_table)
```

Sets tag replacement table.

If you need to replace XML tags by your own tags or text, you should call this method before replace_tags() call to set replacement table.

Parameters

replacement_table	vector containing ReplaceTagItem objects.

4.22 Genre Class Reference

The Genre class.

`#include <Genre.h>`

Public Member Functions

- **Genre** ()
  Genre constructor.
- **Genre** (const Genre &other)
  Genre copy constructor.
- **Genre** (Genre &&other)
  Genre move constructor.
- Genre & **operator=** (const Genre &other)
  operator =
- Genre & **operator=** (Genre &&other)
  operator =

Public Attributes

- std::string genre_code
  fb2 genre code.
- std::string genre_name
  Translated human-readable genre name.

4.22.1 Detailed Description

The Genre class.

Auxiliary class containing translated genre element (see also AuxFunc::get_genre_list() and GenreGroup).

4.22.2 Member Data Documentation

4.22.2.1 genre_code

`std::string Genre::genre_code`

fb2 genre code.

This code is usually valid for epub books also.

4.22.2.2 genre_name

```
std::string Genre::genre_name
```

Translated human-readable genre name.

If translation is not available, English genre name will be set. For translations see "<share_path>/MLBook↩ Proc/genres.csv"

4.23 GenreGroup Class Reference

The GenreGroup class.

```
#include <GenreGroup.h>
```

Public Member Functions

- **GenreGroup** ()
  GenreGroup constructor.
- **GenreGroup** (const GenreGroup &other)
  GenreGroup copy constructor.
- **GenreGroup** (GenreGroup &&other)
  GenreGroup move constructor.
- GenreGroup & **operator=** (const GenreGroup &other)
  operator =
- GenreGroup & **operator=** (GenreGroup &&other)
  operator =

Public Attributes

- std::string **group_code**
  Genre group code name.
- std::string group_name
  Translated human-readable genre group name.
- std::vector< Genre > **genres**
  List of group genres (see Genre).

4.23.1 Detailed Description

The GenreGroup class.

Auxiliary class containing genre group (see also AuxFunc::get_genre_list()).

4.23.2 Member Data Documentation

4.23.2.1 group_name

```
std::string GenreGroup::group_name
```

Translated human-readable genre group name.

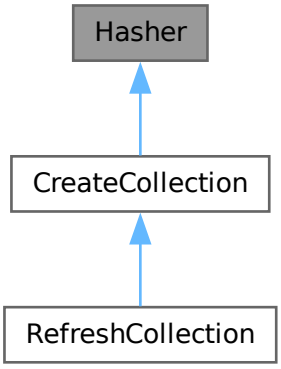
If translation is not available, English genre group name will be set. For translations see "<share_path>/MLBook↩ Proc/genre_groups.csv"

4.24 Hasher Class Reference

The Hasher class.

```
#include <Hasher.h>
```

Inheritance diagram for Hasher:



Public Member Functions

- Hasher (const std::shared_ptr< AuxFunc > &af)

  Hasher constructor.
- std::string buf_hashing (const std::string &buf)

  Creates hash sum for given buffer.
- std::string file_hashing (const std::filesystem::path &filepath)

  Creates hash sum for given file.
- void **cancelAll** ()

  Stops all operations.

Protected Attributes

- std::atomic< bool > cancel

  Stops all operations if true.
- std::function< void()> stop_all_signal

  Stop signal for heir classes.

4.24.1 Detailed Description

The Hasher class.

This class contains methods for hash sums creating (Blake-256 algorithm).

4.24.2 Constructor & Destructor Documentation

4.24.2.1 Hasher()

```
Hasher::Hasher (
            const std::shared_ptr< AuxFunc > & af)
```

Hasher constructor.

Parameters

af	smart pointer to AuxFunc object.

4.24.3 Member Function Documentation

4.24.3.1 buf_hashing()

```
std::string Hasher::buf_hashing (
            const std::string & buf)
```

Creates hash sum for given buffer.

Note

This method can throw MLException in case of error.

Parameters

buf	source buffer.

Returns

32 bytes of hash sum value.

4.24.3.2 file_hashing()

```
std::string Hasher::file_hashing (
            const std::filesystem::path & filepath)
```

Creates hash sum for given file.

Note

This method can throw MLException in case of error.

Parameters

filepath	absolute path to file to be hashed.

Returns

32 bytes of hash sum value.

4.24.4 Member Data Documentation

4.24.4.1 cancel

```
std::atomic<bool> Hasher::cancel  [protected]
```

Stops all operations if *true*.

Warning

Do not call or set this variable yourself!

4.24.4.2 stop_all_signal

```
std::function<void()> Hasher::stop_all_signal  [protected]
```

Stop signal for heir classes.

Warning

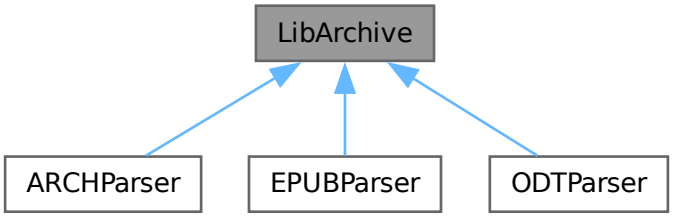
Do not call or set this variable yourself!

4.25 LibArchive Class Reference

The LibArchive class.

```
#include <LibArchive.h>
```

Inheritance diagram for LibArchive:



Public Member Functions

- LibArchive (const std::shared_ptr< AuxFunc > &af)

  LibArchive constructor.
- std::filesystem::path unpackByPosition (const std::filesystem::path &archaddress, const std::filesystem::path &outfolder, const ArchEntry &entry)

  Unpacks single entry content from zip archive.
- std::string unpackByPositionStr (const std::filesystem::path &archaddress, const ArchEntry &entry)

  Unpacks single entry content from zip archive.
- std::filesystem::path unpackByFileNameStream (const std::filesystem::path &archaddress, const std::filesystem::path &outfolder, const std::string &filename)

  Unpacks entry content from archive.
- std::string unpackByFileNameStreamStr (const std::filesystem::path &archaddress, const std::string &filename)

  Unpacks entry content from archive.
- int fileNames (const std::filesystem::path &filepath, std::vector< ArchEntry > &filenames)

  Lists all entries in archive file.
- int fileNamesStream (const std::filesystem::path &address, std::vector< ArchEntry > &filenames)

  Lists all entries in archive file.
- ArchEntry fileinfo (const std::filesystem::path &address, const std::string &filename)

  Returns ArchEntry for particular file or directory in archive.
- int libarchive_packing (const std::filesystem::path &sourcepath, const std::filesystem::path &outpath)

  Packs file or directory into archive.
- int libarchive_packing (const std::shared_ptr< archive > &a, const std::filesystem::path &sourcepath, const bool &rename_source, const std::string &new_source_name)

  Packs file or directory into archive.
- ArchiveRemoveEntry libarchive_remove_init (const std::filesystem::path &sourcepath, const std::filesystem::path &outpath)

  Initializes archive objects for removing entries from archive.
- int libarchive_remove_entry (ArchiveRemoveEntry rm_e, const std::vector< ArchEntry > &to_remove)

  Removes entry from archive.
- void libarchive_error (const std::shared_ptr< archive > &a, const std::string &message, const int &error_number)

  Prints libarchive error messages.
- std::string libarchive_read_entry_str (archive *a, archive_entry *entry)

  Reads archived file to stirng.
- int libarchive_write_data (archive *a, const std::string &data)

  Writes data to archive.
- std::shared_ptr< ArchiveFileEntry > createArchFile (const std::filesystem::path &archaddress, const la_int64_t &position=la_int64_t(0))

  Creates ArchiveFileEntry object.
- std::shared_ptr< archive > libarchive_read_init (std::shared_ptr< ArchiveFileEntry > fl)

  Initializes archive reading.
- std::shared_ptr< archive > libarchive_read_init_fallback (std::shared_ptr< ArchiveFileEntry > fl)

  Initializes archive reading.
- std::filesystem::path libarchive_read_entry (archive *a, archive_entry *entry, const std::filesystem::path &outfolder)

  Unpacks libarchive entry content.
- std::shared_ptr< archive > libarchive_write_init (const std::filesystem::path &outpath)

  Initializes writing to archive.
- int writeToArchive (std::shared_ptr< archive > a, const std::filesystem::path &source, const std::filesystem::path &path_in_arch)

Writes file or directory to archive.

- int libarchive_write_directory (archive *a, archive_entry *entry, const std::filesystem::path &path_in_arch, const std::filesystem::path &source)

  Writes directory to archive.
- int libarchive_write_file (archive *a, archive_entry *entry, const std::filesystem::path &path_in_arch, const std::filesystem::path &source)

  Writes file to archive.
- int libarchive_write_data_from_file (archive *a, const std::filesystem::path &source)

  Writes raw data from file to archive.

4.25.1 Detailed Description

The LibArchive class.

This class contains various methods for archives processing. Based on `libarchive` library.

4.25.2 Constructor & Destructor Documentation

4.25.2.1 LibArchive()

```
LibArchive::LibArchive (
            const std::shared_ptr< AuxFunc > & af)
```

LibArchive constructor.

Parameters

af	smart pointer to AuxFunc object.

4.25.3 Member Function Documentation

4.25.3.1 createArchFile()

```
std::shared_ptr< ArchiveFileEntry > LibArchive::createArchFile (
            const std::filesystem::path & archaddress,
            const la_int64_t & position = la_int64_t(0))
```

Creates ArchiveFileEntry object.

ArchiveFileEntry object is used in libarchive_read_init() and libarchive_read_init_fallback() methods.

Parameters

archaddress	absolute path to archive to be read.
position	position in archive file to start reading from.

Returns

Smart pointer to ArchiveFileEntry object.

4.25.3.2 fileinfo()

```
ArchEntry LibArchive::fileinfo (
            const std::filesystem::path & address,
            const std::string & filename)
```

Returns ArchEntry for particular file or directory in archive.

In case of any error ArchEntry filename will be empty.

Parameters

address	absolute path to archive.
filename	path in archive.

Returns

ArchEntry object.

4.25.3.3 fileNames()

```
int LibArchive::fileNames (
            const std::filesystem::path & filepath,
            std::vector< ArchEntry > & filenames)
```

Lists all entries in archive file.

Warning

This method is suitable for zip archives only. For other archive types behavior is undefined.

Parameters

filepath	absolute path to zip archive.
filenames	vector for results.

Returns

1 in case of success, -1 in case of error, 0 in case archive file has not been opened.

4.25.3.4 fileNamesStream()

```
int LibArchive::fileNamesStream (
            const std::filesystem::path & address,
            std::vector< ArchEntry > & filenames)
```

Lists all entries in archive file.

This method can be used with all supported archive types (see AuxFunc::get_supported_archive_types_unpacking()). However for zip archives it is recommended to use fileNames() method.

Parameters

address	absolute path to archive.
filenames	vector of results.

Returns

in case of succes returns ARCHIVE_OK, libarchive error codes will be returned otherwise (see archive.h file for details).

4.25.3.5 libarchive_error()

```
void LibArchive::libarchive_error (
            const std::shared_ptr< archive > & a,
            const std::string & message,
            const int & error_number)
```

Prints libarchive error messages.

Parameters

a	smart pointer to libarchive object.
message	extra text if needed (will be shown before libarchive error text).
error_number	error code.

4.25.3.6 libarchive_packing() [1/2]

```
int LibArchive::libarchive_packing (
            const std::filesystem::path & sourcepath,
            const std::filesystem::path & outpath)
```

Packs file or directory into archive.

Parameters

sourcepath	absolute path to file or directory to be packed.
outpath	absolute path to resulting archive.

Returns

-100 in case if sourcepath does not exist, -200 in case of error on libarchive object creation, ARCHIVE_OK in case of success, libarchive error code otherwise (see libarchive archive.h file for details).

4.25.3.7 libarchive_packing() [2/2]

```
int LibArchive::libarchive_packing (
            const std::shared_ptr< archive > & a,
            const std::filesystem::path & sourcepath,
            const bool & rename_source,
            const std::string & new_source_name)
```

Packs file or directory into archive.

Use this method if you need source file or directory to be packed under another name.

Parameters

a	smart pointer to libarchive object (see libarchive_write_init()).
sourcepath	absolute path to file or directory to be packed.
rename_source	if set to *true*, source name will be replaced for **new_source_name** inside the archive.
new_source_name	new name to be used inside the archive. Should be UTF-8 string.

Returns

-100 in case if sourcepath does not exist, -200 in case of error on libarchive object creation, ARCHIVE_OK in case of success, libarchive error code otherwise (see libarchive archive.h file for details).

4.25.3.8 libarchive_read_entry()

```
std::filesystem::path LibArchive::libarchive_read_entry (
            archive * a,
            archive_entry * entry,
            const std::filesystem::path & outfolder)
```

Unpacks libarchive entry content.

In most cases you do not need to use this method directly. Use unpackByPosition(), unpackByPositionStr(), unpackByFileNameStream(), unpackByFileNameStreamStr() methods instead.

Parameters

a	pointer to libarchive object.
entry	pointer to libarchive entry object.
outfolder	directory entry content to be unpacked to. If this directory does not exist, it will be created.

Returns

Absolute path to unpacked file or directory.

4.25.3.9 libarchive_read_entry_str()

```
std::string LibArchive::libarchive_read_entry_str (
            archive * a,
            archive_entry * entry)
```

Reads archived file to stirng.

If entry is not a file, empty string will be returned. In most cases you do not need to call this method directly.

Parameters

a	pointer to libarchive object.
entry	entry to be read.

Returns

File content.

4.25.3.10 libarchive_read_init()

```
std::shared_ptr< archive > LibArchive::libarchive_read_init (
            std::shared_ptr< ArchiveFileEntry > fl)
```

Initializes archive reading.

This method can return *nullptr* in case of error. If this method failed, you can try to use libarchive_read_init_fallback() instead.

Parameters

fl	smart pointer to ArchiveFileEntry object (see createArchFile()).

Returns

Smart pointer to libarchive object (can be *nullptr* in case of any error).

4.25.3.11 libarchive_read_init_fallback()

```
std::shared_ptr< archive > LibArchive::libarchive_read_init_fallback (
            std::shared_ptr< ArchiveFileEntry > fl)
```

Initializes archive reading.

This method can return *nullptr* in case of error.

Parameters

fl	smart pointer to ArchiveFileEntry object (see createArchFile()).

Returns

Smart pointer to libarchive object (can be *nullptr* in case of any error).

4.25.3.12 libarchive_remove_entry()

```
int LibArchive::libarchive_remove_entry (
            ArchiveRemoveEntry rm_e,
            const std::vector< ArchEntry > & to_remove)
```

Removes entry from archive.

Parameters

rm_e	ArchiveRemoveEntry got from libarchive_remove_init().
to_remove	list of entries to be removed.

Returns

ARCHIVE_OK in case of success, libarchive error code otherwise (see libarchive archive.h for details).

4.25.3.13 libarchive_remove_init()

```
ArchiveRemoveEntry LibArchive::libarchive_remove_init (
            const std::filesystem::path & sourcepath,
            const std::filesystem::path & outpath)
```

Initializes archive objects for removing entries from archive.

Parameters

sourcepath	absolute path to archive entries to be removed from.
outpath	absolute path to write new archive without removed entries.

Returns

ArchiveRemoveEntry object.

4.25.3.14 libarchive_write_data()

```
int LibArchive::libarchive_write_data (
            archive * a,
            const std::string & data)
```

Writes data to archive.

Writes raw data to archive. In most cases you do not need to call this method directly. Use libarchive_write_directory() and libarchive_write_file() methods instead.

Parameters

a	pointer to libarchive object.
data	data to be written.

Returns

libarchive error code (see libarchive archive.h for details).

4.25.3.15 libarchive_write_data_from_file()

```
int LibArchive::libarchive_write_data_from_file (
            archive * a,
            const std::filesystem::path & source)
```

Writes raw data from file to archive.

In most cases you do not need to use this method. Use writeToArchive() instead.

Parameters

a	pointer to libarchive object.
source	absolute path to source file.

Returns

libarchive error code (see libarchive archive.h for details).

4.25.3.16 libarchive_write_directory()

```
int LibArchive::libarchive_write_directory (
            archive * a,
            archive_entry * entry,
            const std::filesystem::path & path_in_arch,
            const std::filesystem::path & source)
```

Writes directory to archive.

In most case you do not need to use this method. Use writeToArchive() instead.

Note

This method resolves symbolic links and processes them as underlying objects.

Parameters

a	pointer to libarchive object.
entry	pointer to libarchive entry object.
path_in_arch	path of entry in archive (must be relative, example: "my_directory/my_file").
source	absolute path to directory to be packed.

Returns

ARCHIVE_OK in case of success, libarchive error code otherwise (see libarchive archive.h for details).

4.25.3.17 libarchive_write_file()

```
int LibArchive::libarchive_write_file (
            archive * a,
            archive_entry * entry,
            const std::filesystem::path & path_in_arch,
            const std::filesystem::path & source)
```

Writes file to archive.

In most case you do not need to use this method. Use writeToArchive() instead.

Parameters

a	pointer to libarchive object.
entry	pointer to libarchive entry object.
path_in_arch	path of entry in archive (must be relative, example: "my_directory/my_file").
source	absolute path to directory to be packed.

Returns

ARCHIVE_OK in case of success, libarchive error code otherwise (see libarchive archive.h for details).

4.25.3.18 libarchive_write_init()

```
std::shared_ptr< archive > LibArchive::libarchive_write_init (
            const std::filesystem::path & outpath)
```

Initializes writing to archive.

Warning

If resulting archive path already exists, it will be overwritten.

Parameters

outpath	path to resulting archive.

Returns

Smart pointer to libarchive object (can be *nullptr* in case of any error).

4.25.3.19 unpackByFileNameStream()

```
std::filesystem::path LibArchive::unpackByFileNameStream (
            const std::filesystem::path & archaddress,
            const std::filesystem::path & outfolder,
            const std::string & filename)
```

Unpacks entry content from archive.

This method is suitable for any supported types of archives (see AuxFunc::get_supported_archive_types_unpacking()). However for zip archives it is recommended to use unpackByPosition() and unpackByPositionStr() methods (they are a little bit faster).

Parameters

archaddress	absolute path to archive.
outfolder	absolute path to directory, entry to be unpacked to. If directory does not exist, it will be created.
filename	file or directory name in archive.

Returns

Absolute path to unpacked file or directory.

4.25.3.20 unpackByFileNameStreamStr()

```
std::string LibArchive::unpackByFileNameStreamStr (
            const std::filesystem::path & archaddress,
            const std::string & filename)
```

Unpacks entry content from archive.

If entry is a file, unpacks it and returns file content. If entry is a directory, returns empty string. This method is suitable for any supported types of archives (see AuxFunc::get_supported_archive_types_unpacking()). However for zip archives it is recommended to use unpackByPosition() end unpackByPositionStr() methods (they are a little bit faster).

Parameters

archaddress	absolute path to archive.
filename	file or directory name in archive.

Returns

Unpacked file content or empty string.

4.25.3.21 unpackByPosition()

```
std::filesystem::path LibArchive::unpackByPosition (
            const std::filesystem::path & archaddress,
            const std::filesystem::path & outfolder,
            const ArchEntry & entry)
```

Unpacks single entry content from zip archive.

Access to entry is carried out by its absolute position in zip file. It is recommended to use this method for fast unpacking of single file or directory from zip archive.

Warning

This method should be used for zip archives only!

Parameters

archaddress	absolute path to zip archive.
outfolder	absolute path to directory archive entry content to be unpacked to. If directory does not exist, it will be created.
entry	ArchEntry object, obtained by fileNames(), fileNamesStream() or fileinfo() methods.

Returns

Absolute path to unpacked file or directory.

4.25.3.22 unpackByPositionStr()

```
std::string LibArchive::unpackByPositionStr (
            const std::filesystem::path & archaddress,
            const ArchEntry & entry)
```

Unpacks single entry content from zip archive.

If entry is a file, unpacks it and returns file content. If entry is a directory, returns empty string. Access to entry is carried out by its absolute position in zip file. It is recommended to use this method for fast unpacking of single file from zip archive.

Warning

This method should be used for zip archives only!

Parameters

archaddress	absolute path to zip archive.
entry	ArchEntry object, obtained by fileNames(), fileNamesStream() or fileinfo() methods.

Returns

Unpacked file content or empty string.

4.25.3.23 writeToArchive()

```
int LibArchive::writeToArchive (
            std::shared_ptr< archive > a,
            const std::filesystem::path & source,
            const std::filesystem::path & path_in_arch)
```

Writes file or directory to archive.

Note

This method resolves symbolic links and processes them as underlying objects.

Parameters

a	smart pointer to libarchive object (see libarchive_write_init()).
source	absolute path to file or directory to be packed.
path_in_arch	path of entry in archive (must be relative, example: my_directory/my_file).

Returns

ARCHIVE_OK in case of success, libarchive error code otherwise (see libarchive archive.h for details).

4.26 MLException Class Reference

The MLException class.

```
#include <MLException.h>
```

Public Member Functions

- **MLException** ()
  MLException constructor.
- MLException (const std::string &msg)
  MLException constructor.
- **MLException** (const MLException &other)
  MLException copy constructor.
- **MLException** (MLException &&other)
  MLException move constructor.
- MLException & **operator=** (const MLException &other)
  operator =
- MLException & **operator=** (MLException &&other)
  operator =
- **operator bool** ()
  Returns true if MLException contains message.
- std::string what ()
  Returns error message.

4.26.1 Detailed Description

The MLException class.

This class is used as exception to indicate various errors.

4.26.2 Constructor & Destructor Documentation

4.26.2.1 MLException()

```
MLException::MLException (
            const std::string & msg)
```

MLException constructor.

Parameters

msg	message to be printed.

4.26.3 Member Function Documentation

4.26.3.1 what()

```
std::string MLException::what ()
```

Returns error message.

Returns

Error info message.

4.27 NotesBaseEntry Class Reference

The NotesBaseEntry class.

```
#include <NotesBaseEntry.h>
```

Public Member Functions

- **NotesBaseEntry** ()

  NotesBaseEntry constructor.
- NotesBaseEntry (const std::string &collection_name, const std::filesystem::path &book_file_full_path, const std::string &book_path)

  NotesBaseEntry constructor.
- **NotesBaseEntry** (const NotesBaseEntry &other)

  NotesBaseEntry copy constructor.
- **NotesBaseEntry** (NotesBaseEntry &&other)

  NotesBaseEntry move constructor.
- NotesBaseEntry & **operator=** (const NotesBaseEntry &other)

  operator =
- NotesBaseEntry & **operator=** (NotesBaseEntry &&other)

  operator =
- bool **operator==** (const NotesBaseEntry &other) const

  operator ==

Public Attributes

- std::string **collection_name**

  Collection name.
- std::filesystem::path **book_file_full_path**

  Absolute path to book file.
- std::string **book_path**

  Relative path to book in file (in case of archive, empty otherwise).
- std::filesystem::path **note_file_full_path**

  Absolute path to note file.

4.27.1 Detailed Description

The NotesBaseEntry class.

Auxiliary class containing note info. In most cases you do not need to create NotesBaseEntry object yourself (see NotesKeeper).

4.27.2 Constructor & Destructor Documentation

4.27.2.1 NotesBaseEntry()

```
NotesBaseEntry::NotesBaseEntry (
            const std::string & collection_name,
            const std::filesystem::path & book_file_full_path,
            const std::string & book_path)
```

NotesBaseEntry constructor.

Parameters

collection_name	collection name.
book_file_full_path	absolute path to book file.
book_path	relative path to book in file (in case of archive, empty otherwise).

4.28 NotesKeeper Class Reference

The NotesKeeper class.

```
#include <NotesKeeper.h>
```

Public Member Functions

- NotesKeeper (const std::shared_ptr< AuxFunc > &af)

  NotesKeeper constructor.
- virtual ~**NotesKeeper** ()

  NotesKeeper destructor.
- void loadBase ()

  Loads notes base to memory.
- void editNote (const NotesBaseEntry &nbe, const std::string &note)

  Edits note.
- NotesBaseEntry getNote (const std::string &collection_name, const std::filesystem::path &book_file_full_path, const std::string &book_path)

  Gets NotesBaseEntry object from base or creats it.
- std::string readNote (const NotesBaseEntry &nbe)

  Returns content of note file.
- std::string readNoteText (const NotesBaseEntry &nbe)

  Returns note text (if any).
- void removeNotes (const NotesBaseEntry &nbe, const std::filesystem::path &reserve_directory, const bool &make_reserve)

  Removes notes.
- void removeCollection (const std::string &collection_name, const std::filesystem::path &reserve_directory, const bool &make_reserve)

  Removes notes for all books in particular collection.
- void refreshCollection (const std::string &collection_name, const std::filesystem::path &reserve_directory, const bool &make_reserve)

  Compares notes base and collection base and removes notes for absent books.
- std::vector< NotesBaseEntry > getNotesForCollection (const std::string &collection_name)

  Returns all notes for particular collection.

4.28.1 Detailed Description

The NotesKeeper class.

This class contains various methods for collections notes operating. It is recommended to start from loadBase() method. To create new note call getNote() and editNote() methods. getNote() method also can be used to obtain note for particular book in collection. editNote() method can be used to remove note.

4.28.2 Constructor & Destructor Documentation

4.28.2.1 NotesKeeper()

```
NotesKeeper::NotesKeeper (
            const std::shared_ptr< AuxFunc > & af)
```

NotesKeeper constructor.

Parameters

af	smart pointer to AuxFunc object.

4.28.3 Member Function Documentation

4.28.3.1 editNote()

```
void NotesKeeper::editNote (
            const NotesBaseEntry & nbe,
            const std::string & note)
```

Edits note.

If note file does not exist, this method will creat it and add NotesBaseEntry object to base. If note file exists, it will be overwritten. If note string is empty, note file will be removed, and NotesBaseEntry object will be removed from base.

Parameters

nbe	NotesBaseEntry object (see getNote() and getNotesForCollection()).
note	note text.

4.28.3.2 getNote()

```
NotesBaseEntry NotesKeeper::getNote (
            const std::string & collection_name,
            const std::filesystem::path & book_file_full_path,
            const std::string & book_path)
```

Gets NotesBaseEntry object from base or creats it.

If note exists, returns its NotesBaseEntry object. If note does not exist, creats new NotesBaseEntry object.

Parameters

collection_name	collection name, book came from.
book_file_full_path	book file absolute path.
book_path	book path in file (if any, empty string otherwise).

Returns

NotesBaseEntry object for note.

4.28.3.3 getNotesForCollection()

```
std::vector< NotesBaseEntry > NotesKeeper::getNotesForCollection (
            const std::string & collection_name)
```

Returns all notes for particular collection.

Parameters

collection_name	collection name.

Returns

Vector of NotesBaseEntry objects.

4.28.3.4 loadBase()

```
void NotesKeeper::loadBase ()
```

Loads notes base to memory.

This method should be called before any other methods of this class.

4.28.3.5 readNote()

```
std::string NotesKeeper::readNote (
            const NotesBaseEntry & nbe)
```

Returns content of note file.

Note file contains header and note text. Header contains collection name, book file absolute path, book path in file (if any). Header is separated from note text by "\n\n" sequence.

Parameters

nbe	NotesBaseEntry object (see getNote() and getNotesForCollection()).

Returns

String containing note file raw content.

4.28.3.6 readNoteText()

```
std::string NotesKeeper::readNoteText (
            const NotesBaseEntry & nbe)
```

Returns note text (if any).

Parameters

nbe	NotesBaseEntry object (see getNote() and getNotesForCollection()).

Returns

String containing note text.

4.28.3.7 refreshCollection()

```
void NotesKeeper::refreshCollection (
            const std::string & collection_name,
            const std::filesystem::path & reserve_directory,
            const bool & make_reserve)
```

Compares notes base and collection base and removes notes for absent books.

Parameters

collection_name	collection to compare bases.
reserve_directory	absolute path to directory for reserve copies of notes to be removed. If directory does not exist, it will be created.
make_reserve	if set to *true*, refreshCollection() will create reserve copies of notes to be removed.

4.28.3.8 removeCollection()

```
void NotesKeeper::removeCollection (
            const std::string & collection_name,
            const std::filesystem::path & reserve_directory,
            const bool & make_reserve)
```

Removes notes for all books in particular collection.

Parameters

collection_name	collection name.
reserve_directory	absolute path to directory for reserve copies of notes to be removed. If directory does not exist, it will be created.
make_reserve	if set to *true*, removeCollection() will create reserve copies of notes to be removed.

4.28.3.9 removeNotes()

```
void NotesKeeper::removeNotes (
            const NotesBaseEntry & nbe,
            const std::filesystem::path & reserve_directory,
            const bool & make_reserve)
```

Removes notes.

It is recommended to use this method after book removing from collection.

Warning

If **nbe** parametr **book_file_full_path** contains path to rar archive, this method will remove notes for all books in archive.

Parameters

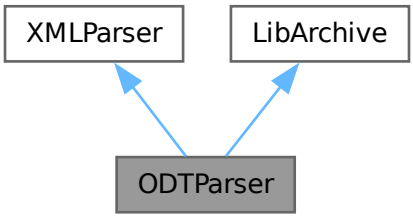
nbe	NotesBaseEntry object (see getNote() and getNotesForCollection()).
reserve_directory	absolute path to directory for reserve copies of notes to be removed. If directory does not exist, it will be created.
make_reserve	if set to *true*, removeNotes() will create reserve copies of notes to be removed.

4.29 ODTParser Class Reference

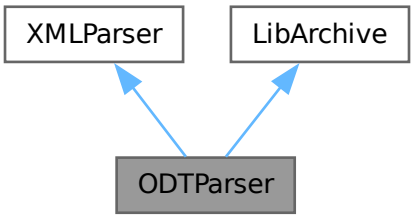
The ODTParser class.

`#include <ODTParser.h>`

Inheritance diagram for ODTParser:



Collaboration diagram for ODTParser:



Public Member Functions

- ODTParser (const std::shared_ptr< AuxFunc > &af)

  ODTParser constructor.
- virtual ~**ODTParser** ()

  ODTParser destructor.
- BookParseEntry odtParser (const std::filesystem::path &odt_path)

  Parses odt files.
- std::shared_ptr< BookInfoEntry > odtBookInfo (const std::filesystem::path &odt_path)

  Gets some extra info from odt files.

Public Member Functions inherited from XMLParser

- XMLParser (const std::shared_ptr< AuxFunc > &af)

  XMLParser constructor.
- std::vector< XMLTag > get_tag (const std::string &book, const std::string &tag_id)

  Returns all tags with particular name.
- std::string get_book_encoding (const std::string &book)

  Returns XML document encoding.
- std::string get_element_attribute (const std::string &element, const std::string &attr_name)

  Returns XML tag attribute if it was found.
- std::vector< XMLTag > listAllTags (const std::string &book)

  Parses XML document.
- void searchTag (const std::vector< XMLTag > &list, const std::string &tag_id, std::vector< XMLTag > &result)

  Searches tag in tag list.
- void htmlSymbolsReplacement (std::string &book)

  Replaces symbols encoded by "&..." sequences.
- void removeAllTags (std::string &book)

  Removes all tag elements from XML document.

Public Member Functions inherited from LibArchive

- LibArchive (const std::shared_ptr< AuxFunc > &af)

  LibArchive constructor.
- std::filesystem::path unpackByPosition (const std::filesystem::path &archaddress, const std::filesystem::path &outfolder, const ArchEntry &entry)

  Unpacks single entry content from zip archive.
- std::string unpackByPositionStr (const std::filesystem::path &archaddress, const ArchEntry &entry)

  Unpacks single entry content from zip archive.
- std::filesystem::path unpackByFileNameStream (const std::filesystem::path &archaddress, const std::filesystem::path &outfolder, const std::string &filename)

  Unpacks entry content from archive.
- std::string unpackByFileNameStreamStr (const std::filesystem::path &archaddress, const std::string &filename)

  Unpacks entry content from archive.
- int fileNames (const std::filesystem::path &filepath, std::vector< ArchEntry > &filenames)

  Lists all entries in archive file.
- int fileNamesStream (const std::filesystem::path &address, std::vector< ArchEntry > &filenames)

  Lists all entries in archive file.
- ArchEntry fileinfo (const std::filesystem::path &address, const std::string &filename)

  Returns ArchEntry for particular file or directory in archive.
- int libarchive_packing (const std::filesystem::path &sourcepath, const std::filesystem::path &outpath)

  Packs file or directory into archive.
- int libarchive_packing (const std::shared_ptr< archive > &a, const std::filesystem::path &sourcepath, const bool &rename_source, const std::string &new_source_name)

  Packs file or directory into archive.
- ArchiveRemoveEntry libarchive_remove_init (const std::filesystem::path &sourcepath, const std::filesystem::path &outpath)

  Initializes archive objects for removing entries from archive.
- int libarchive_remove_entry (ArchiveRemoveEntry rm_e, const std::vector< ArchEntry > &to_remove)

  Removes entry from archive.

- void libarchive_error (const std::shared_ptr< archive > &a, const std::string &message, const int &error_↩ number)

  Prints libarchive error messages.
- std::string libarchive_read_entry_str (archive *a, archive_entry *entry)

  Reads archived file to stirng.
- int libarchive_write_data (archive *a, const std::string &data)

  Writes data to archive.
- std::shared_ptr< ArchiveFileEntry > createArchFile (const std::filesystem::path &archaddress, const la_↩ int64_t &position=la_int64_t(0))

  Creates ArchiveFileEntry object.
- std::shared_ptr< archive > libarchive_read_init (std::shared_ptr< ArchiveFileEntry > fl)

  Initializes archive reading.
- std::shared_ptr< archive > libarchive_read_init_fallback (std::shared_ptr< ArchiveFileEntry > fl)

  Initializes archive reading.
- std::filesystem::path libarchive_read_entry (archive *a, archive_entry *entry, const std::filesystem::path &out-folder)

  Unpacks libarchive entry content.
- std::shared_ptr< archive > libarchive_write_init (const std::filesystem::path &outpath)

  Initializes writing to archive.
- int writeToArchive (std::shared_ptr< archive > a, const std::filesystem::path &source, const std::filesystem↩ ::path &path_in_arch)

  Writes file or directory to archive.
- int libarchive_write_directory (archive *a, archive_entry *entry, const std::filesystem::path &path_in_arch, const std::filesystem::path &source)

  Writes directory to archive.
- int libarchive_write_file (archive *a, archive_entry *entry, const std::filesystem::path &path_in_arch, const std::filesystem::path &source)

  Writes file to archive.
- int libarchive_write_data_from_file (archive *a, const std::filesystem::path &source)

  Writes raw data from file to archive.

4.29.1 Detailed Description

The ODTParser class.

This class contains methods for odt files processing. In most cases you do not need to use this class directly. Use CreateCollection, RefreshCollection and BookInfo instead.

4.29.2 Constructor & Destructor Documentation

4.29.2.1 ODTParser()

```
ODTParser::ODTParser (
            const std::shared_ptr< AuxFunc > & af)
```

ODTParser constructor.

Parameters

af	smart pointer to AuxFunc object.

4.29.3 Member Function Documentation

4.29.3.1 odtBookInfo()

```
std::shared_ptr< BookInfoEntry > ODTParser::odtBookInfo (
            const std::filesystem::path & odt_path)
```

Gets some extra info from odt files.

This method can be used to obtain odt file cover and some other info (see BookInfoEntry) if such info is avaliable.

Note

This method can throw MLException in case of some errors.

Parameters

odt_path	absolute path to odt file.

Returns

Smart pointer to BookInfoEntry object.

4.29.3.2 odtParser()

```
BookParseEntry ODTParser::odtParser (
            const std::filesystem::path & odt_path)
```

Parses odt files.

This method can be used to obtain information from odt files.

Note

This method can throw MLException in case of some errors.

Parameters

odt_path	absolute path to odt file.

Returns

BookParseEntry object.

4.30 OmpLockGuard Class Reference

The OmpLockGuard class.

```
#include <OmpLockGuard.h>
```

Public Member Functions

- OmpLockGuard (omp_lock_t &omp_mtx)
  OmpLockGuard constructor.
- virtual ~**OmpLockGuard** ()
  OmpLockGuard destructor.

4.30.1 Detailed Description

The OmpLockGuard class.

Auxiliary class. Locks omp_lock_t variable on creation and unlocks it on destruction.

4.30.2 Constructor & Destructor Documentation

4.30.2.1 OmpLockGuard()

```
OmpLockGuard::OmpLockGuard (
            omp_lock_t & omp_mtx)
```

OmpLockGuard constructor.

Warning

omp_mtx must be initialized (see `omp_init_lock`).

Parameters

omp_mtx	omp_lock_t variable.

4.31 OpenBook Class Reference

The OpenBook class.

`#include <OpenBook.h>`

Public Member Functions

- OpenBook (const std::shared_ptr< AuxFunc > &af)
  OpenBook constructor.
- std::filesystem::path open_book (const BookBaseEntry &bbe, const bool &copy, const std::filesystem::path &copy_path, const bool &find_fbd, std::function< void(const std::filesystem::path &path)> open_callback)
  Opens book.

4.31.1 Detailed Description

The OpenBook class.

This class contains methods for books "opening".

4.31.2 Constructor & Destructor Documentation

4.31.2.1 OpenBook()

```
OpenBook::OpenBook (
            const std::shared_ptr< AuxFunc > & af)
```

OpenBook constructor.

Parameters

af	smart pointer to AuxFunc object.

4.31.3 Member Function Documentation

4.31.3.1 open_book()

```
std::filesystem::path OpenBook::open_book (
            const BookBaseEntry & bbe,
            const bool & copy,
            const std::filesystem::path & copy_path,
            const bool & find_fbd,
            std::function< void(const std::filesystem::path &path)> open_callback)
```

Opens book.

If book is in archive, unpacks book and returns absolute path to unpacked file. Otherwise returns absolute path to book file.

If **copy** is set to *true* and **copy_path** is not empty, creates directory on **copy_path** and copies book to it.

If **find_fbd** is set to *true*, will try to find and open fbd file instead of book.

If **open_callback** is not *nullptr*, calls it.

Note

This method can throw MLException in case of errors.

Parameters

bbe	BookBaseEntry object.
copy	if set to *true*, copy of book file will be created.
copy_path	absolute path to directory book to be copied to.
find_fbd	if set to *true*, this method will try to find and open fbd file instead of book.
open_callback	method to be called at the end of all operations. **path** argument is an absolute path to method work result.

Returns

Absolute path to book to be opened.

4.32 PaperBookInfoEntry Class Reference

The PaperBookInfoEntry class.

`#include <PaperBookInfoEntry.h>`

Public Member Functions

- **PaperBookInfoEntry** ()
  PaperBookInfoEntry constructor.
- **PaperBookInfoEntry** (const PaperBookInfoEntry &other)
  PaperBookInfoEntry copy constructor.
- **PaperBookInfoEntry** (PaperBookInfoEntry &&other)
  PaperBookInfoEntry move constructor.
- PaperBookInfoEntry & **operator=** (const PaperBookInfoEntry &other)
  operator =
- PaperBookInfoEntry & **operator=** (PaperBookInfoEntry &&other)
  operator =

Public Attributes

- bool **available** = false
  If paper book info is available, will be set to true.
- std::string **book_name**
  Paper book name.
- std::string **publisher**
  Paper book publisher.
- std::string **city**
  City where paper book was published.
- std::string **year**
  Year of paper book publishing.
- std::string **isbn**
  ISBN of paper book.

4.32.1 Detailed Description

The PaperBookInfoEntry class.

Auxiliary class containing some information about paper book source (if any).

4.33 PDFParser Class Reference

The PDFParser class.

`#include <PDFParser.h>`

Public Member Functions

- PDFParser (const std::shared_ptr< AuxFunc > &af)

  PDFParser constructor.
- BookParseEntry pdf_parser (const std::string &file)

  Parses pdf file.
- std::shared_ptr< BookInfoEntry > pdf_annotation_n_cover (const std::string &file, const double &x_dpi, const double &y_dpi)

  Returns pdf book annotation and cover.

4.33.1 Detailed Description

The PDFParser class.

This class contains methods for pdf book parsing, annotations and covers obtaining. In most cases you do not need to use this class directly. Use CreateCollection, RefreshCollection and BookInfo instead.

4.33.2 Constructor & Destructor Documentation

4.33.2.1 PDFParser()

```
PDFParser::PDFParser (
            const std::shared_ptr< AuxFunc > & af)
```

PDFParser constructor.

Parameters

af	smart pointer to AuxFunc object.

4.33.3 Member Function Documentation

4.33.3.1 pdf_annotation_n_cover()

```
std::shared_ptr< BookInfoEntry > PDFParser::pdf_annotation_n_cover (
            const std::string & file,
            const double & x_dpi,
            const double & y_dpi)
```

Returns pdf book annotation and cover.

Parameters

file	pdf file content.
x_dpi	horizontal DPI.
y_dpi	vertical DPI.

Returns

Smart pointer to BookInfoEntry object.

4.33.3.2 pdf_parser()

```
BookParseEntry PDFParser::pdf_parser (
            const std::string & file)
```

Parses pdf file.

Parameters

file	pdf file content.

Returns

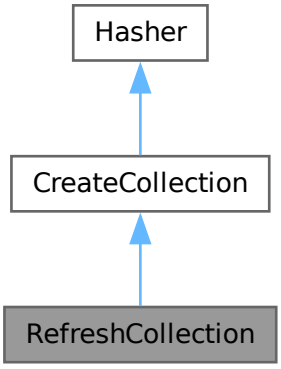
BookParseEntry object.

4.34 RefreshCollection Class Reference

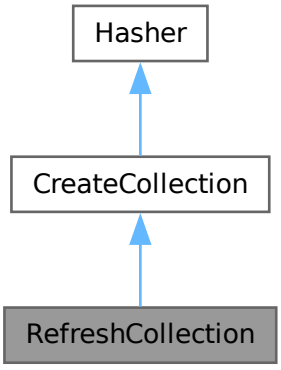
The RefreshCollection class.

`#include <RefreshCollection.h>`

Inheritance diagram for RefreshCollection:



Collaboration diagram for RefreshCollection:



Public Member Functions

- RefreshCollection (const std::shared_ptr< AuxFunc > &af, const std::string &collection_name, const int &num_threads, const bool &remove_empty, const bool &refresh_bookmarks, const bool &fast_refresh, const std::shared_ptr< BookMarks > &bookmarks)

  RefreshCollection constructor.
- virtual ~**RefreshCollection** ()

  RefreshCollection destructor.
- void refreshCollection ()

  Refreshes whole collection.
- void refreshFile (const BookBaseEntry &bbe)

  Refreshes iformation about particular file.
- bool editBook (const BookBaseEntry &bbe_old, const BookBaseEntry &bbe_new)

  Replaces information in database.
- bool refreshBook (const BookBaseEntry &bbe)

  Refreshes information in database about particular book.
- void set_rar_support (const bool &rar_support)

  Enables support of rar archives.

Public Member Functions inherited from CreateCollection

- CreateCollection (const std::shared_ptr< AuxFunc > &af, const std::filesystem::path &collection_path, const std::filesystem::path &books_path, const bool &rar_support, const int &num_threads)

  CreateCollection constructor.
- virtual ~**CreateCollection** ()

  CreateCollection destructor.
- void createCollection ()

  Starts collection creation.

Public Member Functions inherited from Hasher

- Hasher (const std::shared_ptr< AuxFunc > &af)

  Hasher constructor.
- std::string buf_hashing (const std::string &buf)

  Creates hash sum for given buffer.
- std::string file_hashing (const std::filesystem::path &filepath)

  Creates hash sum for given file.
- void **cancelAll** ()

  Stops all operations.

Public Attributes

- std::function< void(const double &total_hash)> total_bytes_to_hash

  "Total bytes to hash" signal.
- std::function< void(const double &hashed)> bytes_hashed

  "Total bytes hashed" signal.

Public Attributes inherited from CreateCollection

- std::function< void()> pulse

  "Pulse" callback.
- std::function< void(const double &)> signal_total_bytes

  "Total bytes" callback.
- std::function< void(const double &progress)> progress

  "Progress" callback.

Additional Inherited Members

Protected Member Functions inherited from CreateCollection

- CreateCollection (const std::shared_ptr< AuxFunc > &af, const int &num_threads)

  CreateCollection constructor.
- void threadRegulator ()

  Threads regulator.
- void openBaseFile ()

  Opens database file for writing.
- void closeBaseFile ()

  Finishes database writing.
- void write_file_to_base (const FileParseEntry &fe)

  Writes file data to database.

Protected Attributes inherited from CreateCollection

- std::filesystem::path base_path

  Absolute path to database.
- std::filesystem::path books_path

  Absolute path to books directory.
- bool rar_support = false

  If true, rar archives will be processed, otherwise - not.
- std::vector< std::tuple< std::filesystem::path, std::string > > already_hashed

  Hashed files.
- std::vector< std::filesystem::path > need_to_parse

  "Need to parse" vector.
- std::atomic< double > current_bytes

  Keeps quantity of bytes have been processed.

Protected Attributes inherited from Hasher

- std::atomic< bool > cancel

  Stops all operations if true.
- std::function< void()> stop_all_signal

  Stop signal for heir classes.

4.34.1 Detailed Description

The RefreshCollection class.

This class contains various methods for collection database refreshing in case of any changes were made to collection files.

4.34.2 Constructor & Destructor Documentation

4.34.2.1 RefreshCollection()

```
RefreshCollection::RefreshCollection (
            const std::shared_ptr< AuxFunc > & af,
            const std::string & collection_name,
            const int & num_threads,
            const bool & remove_empty,
            const bool & refresh_bookmarks,
            const bool & fast_refresh,
            const std::shared_ptr< BookMarks > & bookmarks)
```

RefreshCollection constructor.

Note

See also set_rar_support() method.

Parameters

af	smart pointer to AuxFunc object.
collection_name	collection name.
num_threads	number of threads to be used (see also CreateCollection::CreateCollection()).
remove_empty	if *true*, empty directories and files will be removed.
fast_refresh	if *true*, file hashes calculations will not be carried out (hashes of all collection files will be recalculated otherwise).
refresh_bookmarks	if *true*, bookmarks pointing to absent books will be removed.
bookmarks	smart pointer to BookMarks object.

4.34.3 Member Function Documentation

4.34.3.1 editBook()

```
bool RefreshCollection::editBook (
            const BookBaseEntry & bbe_old,
            const BookBaseEntry & bbe_new)
```

Replaces information in database.

Use this method, if you need to edit database entries manually.

Parameters

bbe_old	existing BookBaseEntry (see BaseKeeper::searchBook()).
bbe_new	BookBaseEntry containing new information.

Returns

Returns *true*, if operation has been successful.

4.34.3.2 refreshBook()

```
bool RefreshCollection::refreshBook (
            const BookBaseEntry & bbe)
```

Refreshes information in database about particular book.

Parameters

bbe	BookBaseEntry object (see BaseKeeper::searchBook()).

Returns

Returns *true*, if operation has been successful.

4.34.3.3 refreshCollection()

```
void RefreshCollection::refreshCollection ()
```

Refreshes whole collection.

Caries out collection refreshing.

Note

This method can throw MLException in case of errors.

4.34.3.4 refreshFile()

```
void RefreshCollection::refreshFile (
            const BookBaseEntry & bbe)
```

Refreshes iformation about particular file.

Parameters

bbe	BookBaseEntry object (see BaseKeeper::searchBook()).

4.34.3.5 set_rar_support()

```
void RefreshCollection::set_rar_support (
            const bool & rar_support)
```

Enables support of rar archives.

Set **rar_support** to *true*, if you need to parse rar archives (see also CreateCollection::CreateCollection()).

Parameters

rar_support	if *true*, rar archives will be parsed.

4.34.4 Member Data Documentation

4.34.4.1 bytes_hashed

```
std::function<void(const double &hashed)> RefreshCollection::bytes_hashed
```

"Total bytes hashed" signal.

Emitted after file has been hashed, to indicate total quantity of bytes have been hashed. Bind your method to **bytes_hashed**, if you need such information.

4.34.4.2 total_bytes_to_hash

```
std::function<void(const double &total_hash)> RefreshCollection::total_bytes_to_hash
```

"Total bytes to hash" signal.

Emitted after files for refreshing have been collected, to indicate total quantity bytes to be hashed. Bind your method to **total_bytes_to_hash**, if you need such information.

4.35 RemoveBook Class Reference

The RemoveBook class.

```
#include <RemoveBook.h>
```

Public Member Functions

- RemoveBook (const std::shared_ptr< AuxFunc > &af, const BookBaseEntry &bbe, const std::string &col_↩ name, const std::shared_ptr< BookMarks > &bookmarks)

  RemoveBook constructor.
- void removeBook ()

  Removes book.

4.35.1 Detailed Description

The RemoveBook class.

This class contains methods to carry out book removing from collection.

4.35.2 Constructor & Destructor Documentation

4.35.2.1 RemoveBook()

```
RemoveBook::RemoveBook (
            const std::shared_ptr< AuxFunc > & af,
            const BookBaseEntry & bbe,
            const std::string & col_name,
            const std::shared_ptr< BookMarks > & bookmarks)
```

RemoveBook constructor.

Parameters

af	smart pointer to AuxFunc object.
bbe	BookBaseEntry containing book info.
col_name	collection name.
bookmarks	BookMarks object.

4.35.3 Member Function Documentation

4.35.3.1 removeBook()

```
void RemoveBook::removeBook ()
```

Removes book.

Note

This method can throw MLException in case of errors.

4.36 ReplaceTagItem Class Reference

The ReplaceTagItem class.

```
#include <ReplaceTagItem.h>
```

Public Member Functions

- **ReplaceTagItem** ()

  ReplaceTagItem constructor.
- **ReplaceTagItem** (const ReplaceTagItem &other)

  ReplaceTagItem copy constructor.
- **ReplaceTagItem** (ReplaceTagItem &&other)

  ReplaceTagItem move constructor.
- ReplaceTagItem & **operator=** (const ReplaceTagItem &other)

  operator =
- ReplaceTagItem & **operator=** (ReplaceTagItem &&other)

  operator =

Public Attributes

- std::string **tag_to_replace**

  Id of tag to be replaced (see XMLTag::tag_id).
- std::string **begin_replacement**

  Replacement for start tag element.
- std::string **end_replacement**

  Replacement for end tag element.

4.36.1 Detailed Description

The ReplaceTagItem class.

Auxiliary class for FormatAnnotation (see FormatAnnotation::setTagReplacementTable()).

4.37 SelfRemovingPath Class Reference

The SelfRemovingPath class.

`#include <SelfRemovingPath.h>`

Public Member Functions

- **SelfRemovingPath** ()
  SelfRemovingPath constructor.
- virtual ~**SelfRemovingPath** ()
  SelfRemovingPath destructor.
- **SelfRemovingPath** (const SelfRemovingPath &other)
  SelfRemovingPath copy constructor.
- **SelfRemovingPath** (SelfRemovingPath &&other)
  SelfRemovingPath move constructor.
- SelfRemovingPath & **operator=** (const SelfRemovingPath &other)
  operator =
- SelfRemovingPath & **operator=** (SelfRemovingPath &&other)
  operator =
- SelfRemovingPath & operator= (const std::filesystem::path &path)
  operator =
- SelfRemovingPath (const std::filesystem::path &path)
  SelfRemovingPath constructor.

Public Attributes

- std::filesystem::path **path**
  Path to be removed on destruction.

4.37.1 Detailed Description

The SelfRemovingPath class.

Auxiliary class. Removes underlying path on destruction, if no any copies of SelfRemovingPath object have been created. Removes path on last copy destruction otherwise.

4.37.2 Constructor & Destructor Documentation

4.37.2.1 SelfRemovingPath()

```
SelfRemovingPath::SelfRemovingPath (
            const std::filesystem::path & path)  [explicit]
```

SelfRemovingPath constructor.

Parameters

path	path to be removed on destruction.

4.37.3 Member Function Documentation

4.37.3.1 operator=()

```
SelfRemovingPath & SelfRemovingPath::operator= (
            const std::filesystem::path & path)
```

operator =

Parameters

path	path to be removed on destruction.

Returns

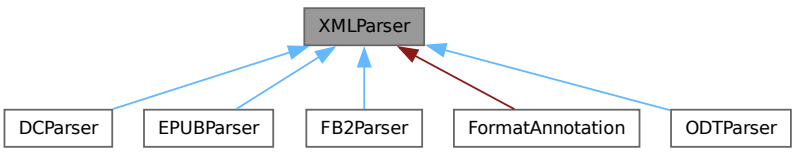
Returns self.

4.38 XMLParser Class Reference

The XMLParser class.

```
#include <XMLParser.h>
```

Inheritance diagram for XMLParser:



Public Member Functions

- XMLParser (const std::shared_ptr< AuxFunc > &af)
  XMLParser constructor.
- std::vector< XMLTag > get_tag (const std::string &book, const std::string &tag_id)
  Returns all tags with particular name.
- std::string get_book_encoding (const std::string &book)
  Returns XML document encoding.
- std::string get_element_attribute (const std::string &element, const std::string &attr_name)
  Returns XML tag attribute if it was found.
- std::vector< XMLTag > listAllTags (const std::string &book)
  Parses XML document.
- void searchTag (const std::vector< XMLTag > &list, const std::string &tag_id, std::vector< XMLTag > &result)
  Searches tag in tag list.
- void htmlSymbolsReplacement (std::string &book)
  Replaces symbols encoded by "&..." sequences.
- void removeAllTags (std::string &book)
  Removes all tag elements from XML document.

4.38.1 Detailed Description

The XMLParser class.

This class containes various methods to process XML documents.

4.38.2 Constructor & Destructor Documentation

4.38.2.1 XMLParser()

```
XMLParser::XMLParser (
            const std::shared_ptr< AuxFunc > & af)
```

XMLParser constructor.

Parameters

af	smart pointer to AuxFunc constructor.

4.38.3 Member Function Documentation

4.38.3.1 get_book_encoding()

```
std::string XMLParser::get_book_encoding (
            const std::string & book)
```

Returns XML document encoding.

Tries to get XML document header and read encoding from it.

Parameters

book	XML document content.

Returns

Returns XML document encoding if it was found.

4.38.3.2 get_element_attribute()

```
std::string XMLParser::get_element_attribute (
            const std::string & element,
            const std::string & attr_name)
```

Returns XML tag attribute if it was found.

Parameters

element	tag start element (see XMLTag::element).
attr_name	requested attribute name.

Returns

Returns attribute content if it was found.

4.38.3.3 get_tag()

```
std::vector< XMLTag > XMLParser::get_tag (
            const std::string & book,
            const std::string & tag_id)
```

Returns all tags with particular name.

This method uses listAllTags() and searchTag() under hood.

Note

This method can throw MLException in case of errors.

Parameters

book	XML document content.
tag↩ _id	requested tag name.

Returns

Vector of found tags.

4.38.3.4 htmlSymbolsReplacement()

```
void XMLParser::htmlSymbolsReplacement (
            std::string & book)
```

Replaces symbols encoded by "&..." sequences.

Replaces symbols encoded by "&..." sequences for actual values (see this for details).

Parameters

book	XML document content symbols to be replaced in.

4.38.3.5 listAllTags()

```
std::vector< XMLTag > XMLParser::listAllTags (
            const std::string & book)
```

Parses XML document.

Returns all found tags.

Note

This method can throw MLException in case of errors.

Parameters

book	XML document content.

Returns

Vector of found tags.

4.38.3.6 removeAllTags()

```
void XMLParser::removeAllTags (
            std::string & book)
```

Removes all tag elements from XML document.

Simply removes all found XML tag elements and leaves only document content.

Parameters

book	XML document content.

4.38.3.7 searchTag()

```
void XMLParser::searchTag (
            const std::vector< XMLTag > & list,
            const std::string & tag_id,
            std::vector< XMLTag > & result)
```

Searches tag in tag list.

Searches tags in tag list by given tag name.

Parameters

list	tag list search to be carried out in.
tag↩ _id	tag name for tags to be searched.
result	vector for results (can be not empty, this methods appends found tags to existing results).

4.39 XMLTag Class Reference

The XMLTag class.

`#include <XMLTag.h>`

Public Member Functions

- **XMLTag** ()
  XMLTag constructor.
- **XMLTag** (const XMLTag &other)
  XMLTag copy constructor.
- XMLTag & **operator=** (const XMLTag &other)
  operator =
- **XMLTag** (XMLTag &&other)
  XMLTag move constructor.
- XMLTag & **operator=** (XMLTag &&other)
  operator =
- bool hasContent () const
  Checks if tag has content.

Public Attributes

- std::string element
  Tag start element content.
- std::string **tag_id**
  Tag name.
- std::string::size_type content_start
  Index of first byte of tag content.
- std::string::size_type content_end
  Index of last byte of tag content.
- std::vector< XMLTag > **tag_list**
  List of XML tags, found in tag content (if any).

4.39.1 Detailed Description

The XMLTag class.

Auxiliary class for XMLParser. Contains tag start element content, tag name, index of tag content first byte in XML document and index of content last byte. Also contains list of tags were found in tag content.

4.39.2 Member Function Documentation

4.39.2.1 hasContent()

```
bool XMLTag::hasContent () const
```

Checks if tag has content.

This method returns *true*, if **content_start** and **content_end** are not equal to std::string::npos.

Returns

true if tag has content.

4.39.3 Member Data Documentation

4.39.3.1 content_end

```
std::string::size_type XMLTag::content_end
```

Index of last byte of tag content.

Index of last byte of tag content in XML document. Can be equal to std::string::npos, if tag does not have content.

4.39.3.2 content_start

```
std::string::size_type XMLTag::content_start
```

Index of first byte of tag content.

Index of first byte of tag content in XML document. Start of tag can be found by **element** size subtration from **content_start**. If **content_start** value is equal to std::string::npos, it indicates error on tag reading (even if tag does not have any content).

4.39.3.3 element

```
std::string XMLTag::element
```

Tag start element content.

Tag start element content including opening "<" and closing ">" symbols.

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