JSON2Batch

1.0.0

Generated on Sat Apr 27 2024 15:49:26 for JSON2Batch by Doxygen 1.10.0

Sat Apr 27 2024 15:49:26

Chapter 1

JSON2Batch

1.0.0

JSON2Batch was developed for a project during our first and second semester of university. It generates batch files from JSON files, which can spawn terminals or applications, that run under certain parameters specified within the JSON file.

The project was carried out by **Elena Schwarzbach, Max Rodler, Simon Blum, Sonia Sinaci**.

1.1 Table of Contents

1.2 Build Instructions

1.2.1 Linux

```
git clone -b release https://github.com/DHBWProjectsIT23/JSON2Bat/
cd JSON2Bat
cmake -S . -B build
cmake --build build
```

1.2.1.1 UNIX Compiler Compatibility

The project has been tested with GCC version 10.5+ and Clang version 14+.

1.2.2 Windows

The project has been tested on windows using MinGW and Ninja.

1.2.3 Build with MinGW

MinGW can be installed by following Steps 1 through 7 in this tutorial

```
git clone -b release https://github.com/DHBWProjectsIT23/JSON2Bat/
cd JSON2Bat
cmake -S . -B build -G "MinGW Makefiles"
cmake --build build
```

The project was tested using MinGW with the above mentioned installation and using this GitHub Action.

1.2.4 Build with Ninja

The Ninja binary can be found here. Alternatively Ninja can be build from source.

```
git clone -b release https://github.com/DHBWProjectsIT23/JSON2Bat/
cd JSON2Bat
cmake -S . -B build -G "Ninja"
cmake --build build
```

The project was tested using Ninja v1.12.0 on a local machine and using v1.10 using this GitHub Action.

1.2.5 Generating Documentation

If the *doxygen* executable is installed local documentation can be generated using:

```
git clone -b release https://github.com/DHBWProjectsIT23/JSON2Bat/
cd JSON2Bat
cmake -S . -B build
cmake --build build --target doxygen_generate
```

1.3 Documentation

The documentation generated by doxygen for this project can be found here. A PDF version can be found here and a short man page can be found here. After building the project the man page can be accessed by:

```
man assets/man/json2batch.troff
```

1.3.1 Project Structure

The project directory is structured as follows:

- assets > *Includes files, not directly related to the code*
- conf > *Includes files which will be configured by CMake*
- include > *Includes header files for external libraries*
- lib > *Includes source/binary files for external libraries*
- src > *Includes the source code for the project*
  - sources > *Includes all ".cpp" files*
  - include > *Includes all ".hpp" files*
  - main.cpp

1.4 External Libraries

1.4.1 easylogging++

The `easylogging++` library is used for logging within the application. The configuration for the library is done via a logging file which can be found in `conf/easylogging.in.conf`. Cmake configures this file into the binary directory upon building. If the configuration file is removed, the application will no longer run.

1.4.2 LoggingWrapper

While easylogging++ is used for the logging back–end within the code there are little remains apart from the configuration. The logging and output of the application is done over a self written wrapper. Altough it is self written, due to it beeing not part of the project we consider it an external libraries. The wrapper is used to simplify parallel output to stdout and the logfile and also enables increased output to stdout for the verbose mode. A few macros are defined for use within the application:

- OUTPUT > *Outputs to stdout and the logfile*
- LOG_INFO > *By default only outputs to the logfile*
- LOG_WARNING > *Formats text and outputs to stdout and the logfile*
- LOG_ERROR > *Same as LOG_WARNING but in red and bold*

The macros can be used with streaming in the same way as std::cout would be used. Furthermore, some rudimentary performance tests showed, that the use of the wrapper, does not affect performance in comparison to using both std::cout and easylogging itself.

1.4.3 jsoncpp

For parsing the JSON files, the `jsoncpp` library is used. On UNIX system this library can simply be installed using the systems package manager (tested with WSL/Ubuntu and Arch). For Windows system a prebuild version is included.

1.5 License

The project is published under the Apache License V2.0. Check the [license file](LICENSE) for more information!

Chapter 2

Topic Index

2.1 Topics

Here is a list of all topics with brief descriptions:

Chapter 3

Namespace Index

3.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Chapter 4

Hierarchical Index

4.1 Class Hierarchy

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

Chapter 5

Class Index

5.1 Class List

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

Chapter 6

File Index

6.1 File List

Here is a list of all files with brief descriptions:

Chapter 7

Topic Documentation

7.1 StyleHelpers

Static variables to help with CLI styling.

Static variables to help with CLI styling.

A group of strings, that use escape sequences to easily style the command line interface on Unix systems. When compiling for Windows all of these strings will be empty, as escape sequences can't be used the same way.

Chapter 8

Namespace Documentation

8.1 cli Namespace Reference

Includes everything regarding the CLI.

Classes

- class CommandLineHandler

  Responsible for the Command Line Interface.

Variables

- static const struct option options [ ]

8.1.1 Detailed Description

Includes everything regarding the CLI.

This namespace includes all the code regarding the Command Line Interface. This includes the CommandLineHandler Class, the struct for the options and helpers for Styling.

See also

CommandLineHandler

options

StyleHelpers

8.1.2 Variable Documentation

8.1.2.1 options

```
const struct option cli::options[]  [static]
```

Initial value:

```
= {
    {"help", no_argument, nullptr, 'h'},
    {"version", no_argument, nullptr, 'v'},
    {"credits", no_argument, nullptr, 'c'},
    {"verbose", no_argument, nullptr, 0},
    {"outdir", required_argument, nullptr, 'o'},
    nullptr
}
```

Definition at line 121 of file CommandLineHandler.hpp.

8.2 config Namespace Reference

Namespace used for general project information.

Variables

- constexpr auto LOG_CONFIG = "/home/simon/1_Coding/projectJsonToBat/build/config/easylogging.conf"
- constexpr auto EXECUTABLE_NAME = "json2batch"
- constexpr auto MAJOR_VERSION = "1"
- constexpr auto MINOR_VERSION = "0"
- constexpr auto PATCH_VERSION = "0"
- constexpr auto DESCRIPTION = "A simple tool to convert json to batch."
- constexpr auto PROJECT_NAME = "JSON2Batch"
- constexpr auto AUTHORS = "@AUTHORS"
- constexpr auto HOMEPAGE_URL = "https://dhbwprojectsit23.github.io/JSON2Bat"

8.2.1 Detailed Description

Namespace used for general project information.

8.2.2 Variable Documentation

8.2.2.1 AUTHORS

```
constexpr auto config::AUTHORS = "@AUTHORS"  [inline], [constexpr]
```

Definition at line 33 of file config.hpp.

8.2.2.2 DESCRIPTION

```
constexpr auto config::DESCRIPTION = "A simple tool to convert json to batch."  [inline],
[constexpr]
```

Definition at line 31 of file config.hpp.

8.2.2.3 EXECUTABLE_NAME

```
constexpr auto config::EXECUTABLE_NAME = "json2batch"  [inline], [constexpr]
```

Definition at line 27 of file config.hpp.

8.2.2.4 HOMEPAGE_URL

```
constexpr auto config::HOMEPAGE_URL = "https://dhbwprojectsit23.github.io/JSON2Bat"  [inline],
[constexpr]
```

Definition at line 34 of file config.hpp.

8.2.2.5 LOG_CONFIG

```
constexpr auto config::LOG_CONFIG = "/home/simon/1_Coding/projectJsonToBat/build/config/easylogging.↩
conf"  [inline], [constexpr]
```

Definition at line 26 of file config.hpp.

8.2.2.6 MAJOR_VERSION

```
constexpr auto config::MAJOR_VERSION = "1"  [inline], [constexpr]
```

Definition at line 28 of file config.hpp.

8.2.2.7 MINOR_VERSION

```
constexpr auto config::MINOR_VERSION = "0"  [inline], [constexpr]
```

Definition at line 29 of file config.hpp.

8.2.2.8 PATCH_VERSION

```
constexpr auto config::PATCH_VERSION = "0"  [inline], [constexpr]
```

Definition at line 30 of file config.hpp.

8.2.2.9 PROJECT_NAME

```
constexpr auto config::PROJECT_NAME = "JSON2Batch"  [inline], [constexpr]
```

Definition at line 32 of file config.hpp.

8.3 exceptions Namespace Reference

Namespace used for customized exceptions.

Classes

- class ContainsBadCharacterException
  Exception for when a string contains bad characters.
- class CustomException
  Base class for all custom exceptions.
- class FailedToOpenFileException
  Exception for when a file can't be opened.
- class FileExistsException
  Exception for an already exisiting outputfile.
- class InvalidKeyException
  Exception for invalid keys.
- class InvalidTypeException
  Exception for invalid types.
- class InvalidValueException
  Exception for an ivalid (usually empty) value field.
- class MissingKeyException
  Exception for missing keys within entries.
- class MissingTypeException
  Exception for missing types of entries.
- class NoSuchDirException
  Exception for when a directory does not exist.
- class ParsingException
  Exception for syntax errors within the json file.
- class UnreachableCodeException
  Exception for when the application reaches code it shouldn't reach.

8.3.1 Detailed Description

Namespace used for customized exceptions.

8.4 parsing Namespace Reference

The namespace containing everything relevant to parsing.

Classes

- class FileData
  This class contains all data from the json file.
- class JsonHandler
  This file reads all data from the json file.
- class KeyValidator
  Validates keys of a Json::Value object.

8.4.1 Detailed Description

The namespace containing everything relevant to parsing.

This namespace contains all relevant classes to parsing the json file and creating the batch output.

See also

JsonHandler

FileData

KeyValidator

BatchCreator

8.5 utilities Namespace Reference

Includes all utilities.

Classes

- class Utils

  Responsible for utility function.

8.5.1 Detailed Description

Includes all utilities.

This namespace includes the Utils class with utility functions which can be used throughout the project.

See also

Utils

Chapter 9

Class Documentation

9.1 BatchCreator Class Reference

Creates a batch file from a FileData obeject.

`#include <BatchCreator.hpp>`

Public Member Functions

- BatchCreator (std::shared_ptr< parsing::FileData > fileData)
  Initializes the BatchCreator.
- std::shared_ptr< std::stringstream > getDataStream () const
  Returns the stringstream.

Private Member Functions

- void createBatch () const
  Creates the batch stream.
- void writeStart () const
  Wirtes the start of the batch file.
- void writeHideShell () const
  Writes the visibility of the shell.
- void writeCommands () const
  Writes the commands to be executed.
- void writeEnvVariables () const
  Set's environment variables.
- void writePathVariables () const
  Set's the path variables.
- void writeApplication () const
  If an application is given, it is started at the end.
- void writeEnd () const
  Writes the end of the batch file.

Private Attributes

- std::shared_ptr< std::stringstream > dataStream
- std::shared_ptr< parsing::FileData > fileData

9.1.1 Detailed Description

Creates a batch file from a FileData obeject.

Uses a FileData object to create a string stream, which can then be streamed into a batch file.

See also

FileData

Definition at line 29 of file BatchCreator.hpp.

9.1.2 Constructor & Destructor Documentation

9.1.2.1 BatchCreator()

```
BatchCreator::BatchCreator (
            std::shared_ptr< parsing::FileData > fileData )  [explicit]
```

Initializes the BatchCreator.

Creates a stringstream and calls the createBatch() function

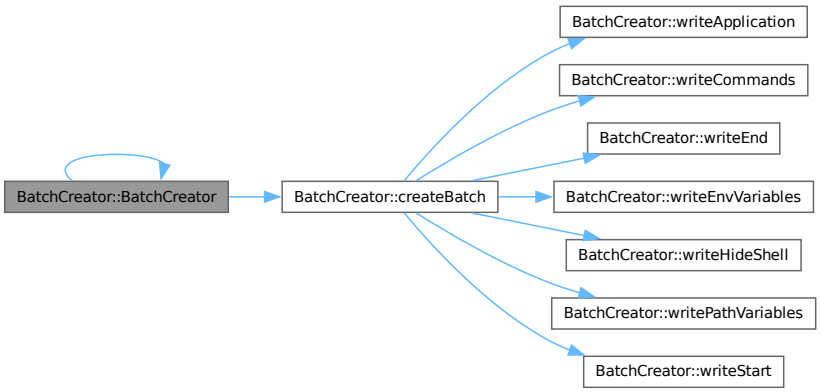
Parameters

filenData	A shared pointer to the FileData object

Definition at line 18 of file BatchCreator.cpp.

References BatchCreator(), and createBatch().

Here is the call graph for this function:



Here is the caller graph for this function:

9.1.3 Member Function Documentation

9.1.3.1 createBatch()

```
void BatchCreator::createBatch ( ) const  [private]
```

Creates the batch stream.

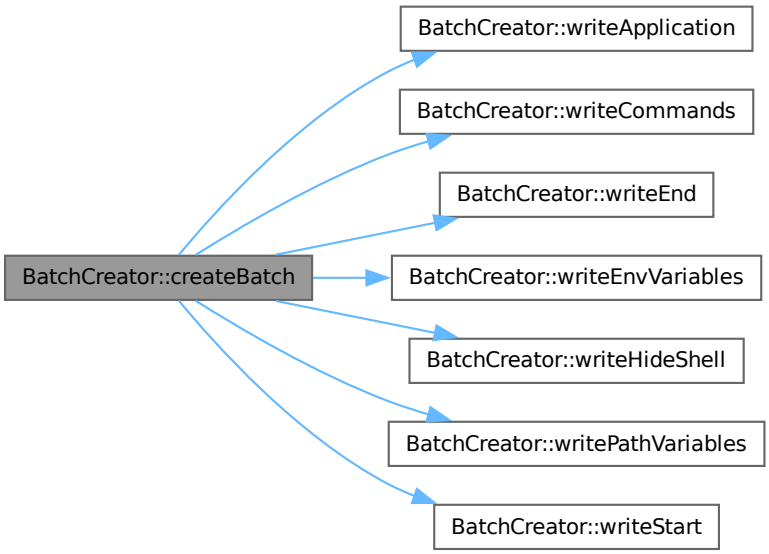
< FileData object

The method calls all necessary functions to create the stream for the batch file.

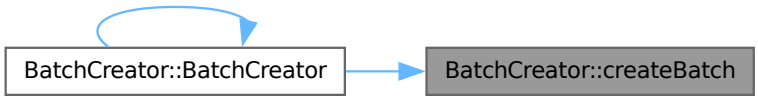
Definition at line 25 of file BatchCreator.cpp.

References writeApplication(), writeCommands(), writeEnd(), writeEnvVariables(), writeHideShell(), writePathVariables(), and writeStart().

Here is the call graph for this function:



Here is the caller graph for this function:



9.1.3.2 getDataStream()

```
std::shared_ptr< std::stringstream > BatchCreator::getDataStream ( ) const  [inline]
```

Returns the stringstream.

Returns

A shared pointer to the stringstream

Definition at line 46 of file BatchCreator.hpp.

9.1.3.3 writeApplication()

```
void BatchCreator::writeApplication ( ) const  [private]
```

If an application is given, it is started at the end.

If the key "application" is given in the json file, the application is started at the end of the batch file.

- {ReqFunc16}
- {ReqFunc25}

Definition at line 81 of file BatchCreator.cpp.

Here is the caller graph for this function:

9.1.3.4 writeCommands()

```
void BatchCreator::writeCommands ( ) const  [private]
```

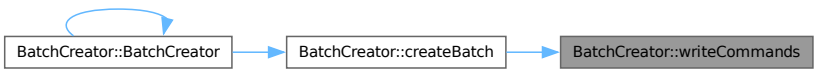
Writes the commands to be executed.

Writes the commands to be executed from the FileData object. Those originiate from the "commands" entry in the json file

- {ReqFunc20}
- {ReqFunc22}

Definition at line 53 of file BatchCreator.cpp.

Here is the caller graph for this function:



9.1.3.5 writeEnd()

```
void BatchCreator::writeEnd ( ) const  [private]
```

Writes the end of the batch file.

Writes the end of the batch file, which is always the same:

- @ECHO ON

Definition at line 99 of file BatchCreator.cpp.

Here is the caller graph for this function:

9.1.3.6 writeEnvVariables()

```
void BatchCreator::writeEnvVariables ( ) const  [private]
```

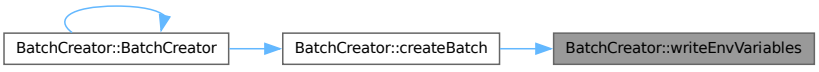
Set's environment variables.

Set's the envirment variables for the batch. Those originiate from the "ENV" entry in the json file with the following syntax:

- Entry under "key" = Entry under "value"
- {ReqFunc20}
- {ReqFunc21}

Definition at line 62 of file BatchCreator.cpp.

Here is the caller graph for this function:



9.1.3.7 writeHideShell()

```
void BatchCreator::writeHideShell ( ) const  [private]
```

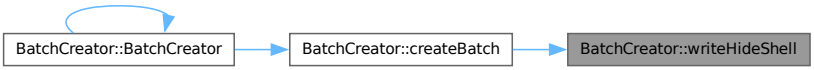
Writes the visibility of the shell.

This hides/shows the shell after the batch file has been executed

- {ReqFunc19}

Definition at line 42 of file BatchCreator.cpp.

Here is the caller graph for this function:



9.1.3.8 writePathVariables()

```
void BatchCreator::writePathVariables ( ) const  [private]
```

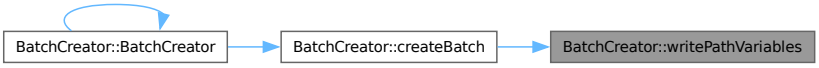
Set's the path variables.

Set's the path variables for the batch. Those originiate from the "PATH" entry in the json file

- {ReqFunc20}
- {ReqFunc23}

Definition at line 70 of file BatchCreator.cpp.

Here is the caller graph for this function:



9.1.3.9 writeStart()

```
void BatchCreator::writeStart ( ) const  [private]
```

Wirtes the start of the batch file.

Writes the start of the batch file, which is always the same:

- setzt ECHO off
- startet cmd.exe

Definition at line 36 of file BatchCreator.cpp.

Here is the caller graph for this function:

9.1.4 Member Data Documentation

9.1.4.1 dataStream

```
std::shared_ptr<std::stringstream> BatchCreator::dataStream  [private]
```

Definition at line 52 of file BatchCreator.hpp.

9.1.4.2 fileData

```
std::shared_ptr<parsing::FileData> BatchCreator::fileData  [private]
```

< stringstream for the batch file

Definition at line 54 of file BatchCreator.hpp.

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

- src/include/BatchCreator.hpp
- src/sources/BatchCreator.cpp

9.2 cli::CommandLineHandler Class Reference

Responsible for the Command Line Interface.

```
#include <CommandLineHandler.hpp>
```

Public Member Functions

- CommandLineHandler ()=delete

  The Constructor of the CommandLineHandler Class.
- ~CommandLineHandler ()=delete

  The Destructor of the CommandLineHandler Class.

Static Public Member Functions

- static void printHelp ()

  Prints the help message.
- static void printVersion ()

  Prints the version message.
- static void printCredits ()

  Prints the credits message.
- static std::tuple< std::optional< std::string >, std::vector< std::string > > parseArguments (int argc, char *argv[])

  Parses the Command Line Arguments.

9.2.1 Detailed Description

Responsible for the Command Line Interface.

This class is responsible for parsing the command line arguments, printing Help/Version/Credits messages and returning inputted files.

Author

Simon Blum

Date

2024-04-18

Version

0.1.5

See also

options

Definition at line 56 of file CommandLineHandler.hpp.

9.2.2 Constructor & Destructor Documentation

9.2.2.1 CommandLineHandler()

```
cli::CommandLineHandler::CommandLineHandler ( )  [delete]
```

The Constructor of the CommandLineHandler Class.

Note

As all functions are static it should not be used and as such is deleted.

9.2.2.2 ~CommandLineHandler()

```
cli::CommandLineHandler::~CommandLineHandler ( )  [delete]
```

The Destructor of the CommandLineHandler Class.

Note

As all functions are static it should not be used and as such is deleted.

9.2.3 Member Function Documentation

9.2.3.1 parseArguments()

```
std::tuple< std::optional< std::string >, std::vector< std::string > > cli::CommandLine↩
Handler::parseArguments (
            int argc,
            char * argv[] )  [static]
```

Parses the Command Line Arguments.

This function uses the "getopt.h" library to parse all options given and then returns all files which are given as arguments.

- {ReqFunc4}
- {ReqFunc5}
- {ReqNonFunc4}

Parameters

argc	The number of arguments given
argv	The arguments given

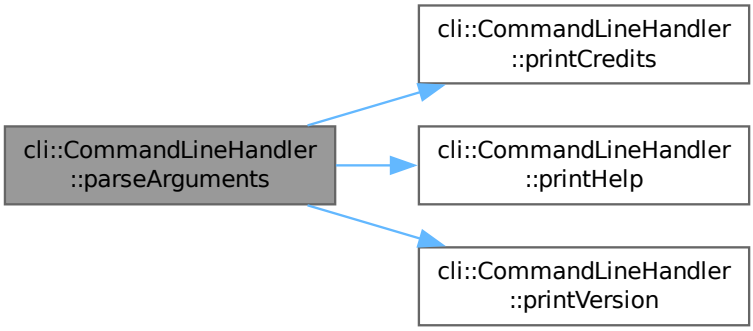
Returns

Returns a tuple containing the output directory and the files

Definition at line 69 of file CommandLineHandler.cpp.

References cli::options, printCredits(), printHelp(), and printVersion().

Here is the call graph for this function:



9.2.3.2 printCredits()

```
void cli::CommandLineHandler::printCredits ( )  [static]
```

Prints the credits message.

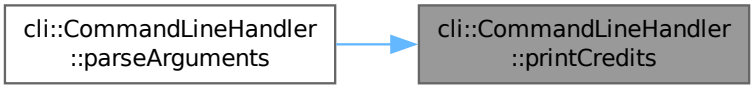
- {ReqFunc3}

Note

This function ends the application.

Definition at line 50 of file CommandLineHandler.cpp.

Here is the caller graph for this function:



9.2.3.3 printHelp()

```
void cli::CommandLineHandler::printHelp ( )  [static]
```

Prints the help message.

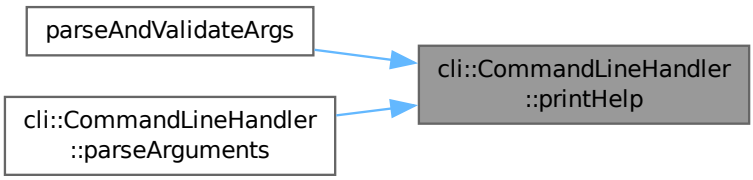
- {ReqFunc1}
- {ReqFunc2}

Note

This function ends the application.

Definition at line 22 of file CommandLineHandler.cpp.

Here is the caller graph for this function:



9.2.3.4 printVersion()

```
void cli::CommandLineHandler::printVersion ( )  [static]
```

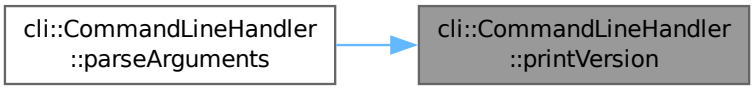
Prints the version message.

Note

This function ends the application.

Definition at line 44 of file CommandLineHandler.cpp.

Here is the caller graph for this function:



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

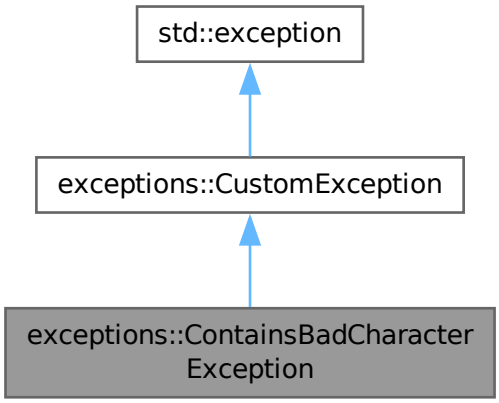
- src/include/CommandLineHandler.hpp
- src/sources/CommandLineHandler.cpp

9.3 exceptions::ContainsBadCharacterException Class Reference

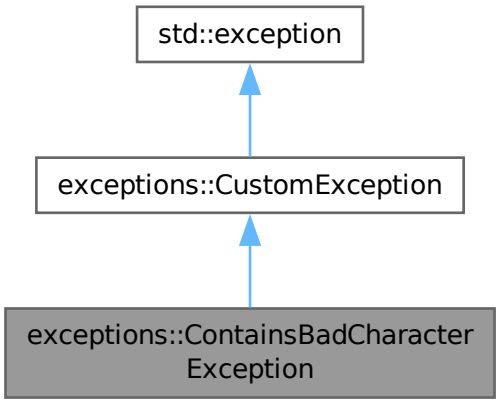
Exception for when a string contains bad characters.

`#include <Exceptions.hpp>`

Inheritance diagram for exceptions::ContainsBadCharacterException:



Collaboration diagram for exceptions::ContainsBadCharacterException:



Public Member Functions

- ContainsBadCharacterException (const std::string &value)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- std::string message

9.3.1 Detailed Description

Exception for when a string contains bad characters.

Definition at line 295 of file Exceptions.hpp.

9.3.2 Constructor & Destructor Documentation

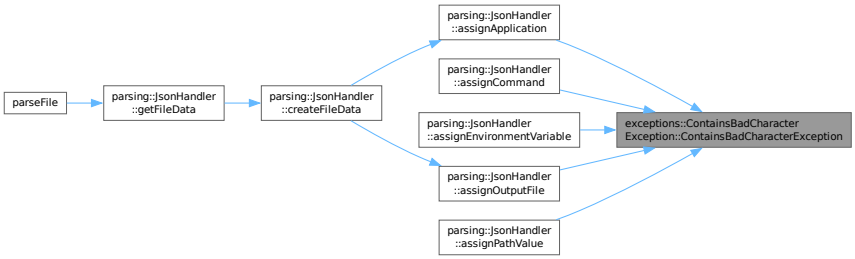
9.3.2.1 ContainsBadCharacterException()

```
exceptions::ContainsBadCharacterException::ContainsBadCharacterException (
            const std::string & value )  [inline], [explicit]
```

Definition at line 300 of file Exceptions.hpp.

References message.

Here is the caller graph for this function:



9.3.3 Member Function Documentation

9.3.3.1 what()

```
const char * exceptions::ContainsBadCharacterException::what ( ) const  [inline], [override],
[noexcept]
```

Definition at line 304 of file Exceptions.hpp.

References message.

9.3.4 Member Data Documentation

9.3.4.1 message

```
std::string exceptions::ContainsBadCharacterException::message  [private]
```

Definition at line 297 of file Exceptions.hpp.

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

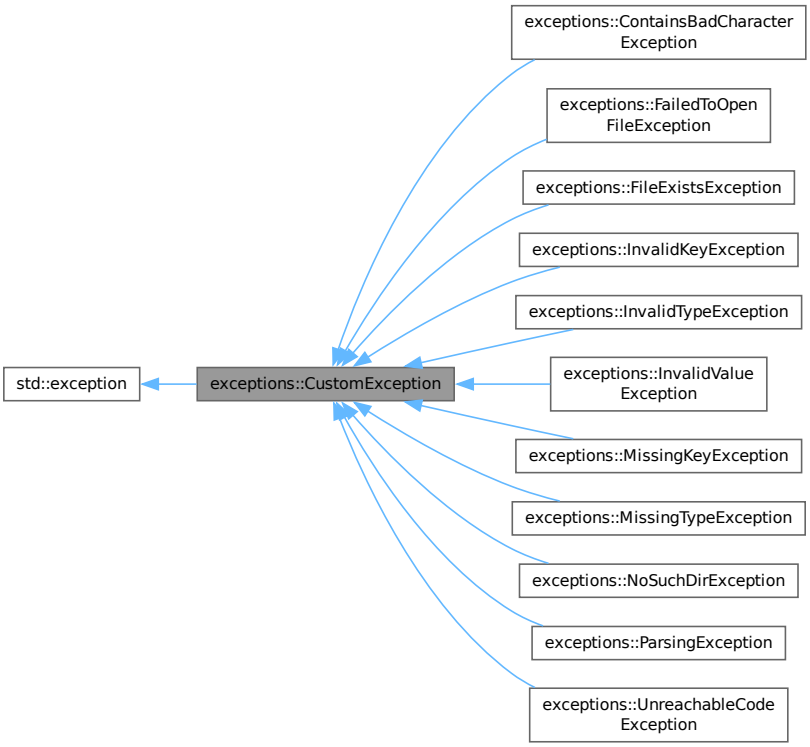
- src/include/Exceptions.hpp

9.4 exceptions::CustomException Class Reference

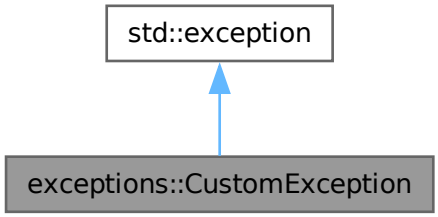
Base class for all custom exceptions.

```
#include <Exceptions.hpp>
```

Inheritance diagram for exceptions::CustomException:



Collaboration diagram for exceptions::CustomException:



Public Member Functions

- const char * what () const noexcept override

9.4.1 Detailed Description

Base class for all custom exceptions.

This class is the base class which is inherited by all custom exceptions. It can be used to catch all exceptions that are thrown by us.

See also

std::exception

Definition at line 35 of file Exceptions.hpp.

9.4.2 Member Function Documentation

9.4.2.1 what()

```
const char * exceptions::CustomException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 37 of file Exceptions.hpp.

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

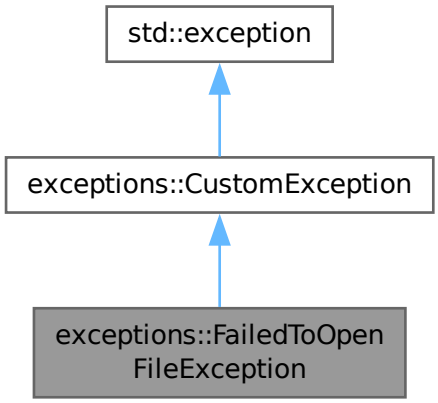
- src/include/Exceptions.hpp

9.5 exceptions::FailedToOpenFileException Class Reference

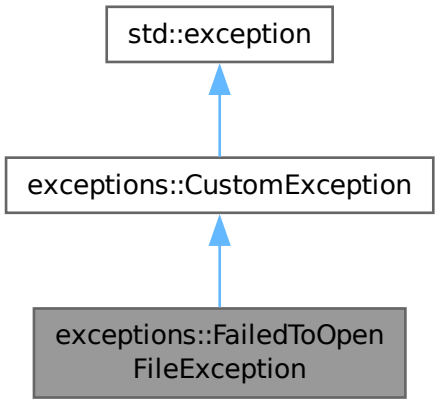
Exception for when a file can't be opened.

`#include <Exceptions.hpp>`

Inheritance diagram for exceptions::FailedToOpenFileException:



Collaboration diagram for exceptions::FailedToOpenFileException:



Public Member Functions

- FailedToOpenFileException (const std::string &file)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- std::string message

9.5.1 Detailed Description

Exception for when a file can't be opened.

Definition at line 259 of file Exceptions.hpp.

9.5.2 Constructor & Destructor Documentation

9.5.2.1 FailedToOpenFileException()

```
exceptions::FailedToOpenFileException::FailedToOpenFileException (
            const std::string & file )  [inline], [explicit]
```

Definition at line 264 of file Exceptions.hpp.

References message.

9.5.3 Member Function Documentation

9.5.3.1 what()

```
const char * exceptions::FailedToOpenFileException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 268 of file Exceptions.hpp.

References message.

9.5.4 Member Data Documentation

9.5.4.1 message

```
std::string exceptions::FailedToOpenFileException::message  [private]
```

Definition at line 261 of file Exceptions.hpp.

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

- src/include/Exceptions.hpp

9.6 parsing::FileData Class Reference

This class contains all data from the json file.

`#include <FileData.hpp>`

Public Member Functions

- void setOutputFile (std::string &newOutputfile)
  Setter for this->outputfile.
- void setHideShell (bool newHideShell)
  Setter for this->hideshell.
- void setApplication (const std::string &newApplication)
  Setter for this->application.
- void addCommand (const std::string &command)
  Adds a given command to this->commands.
- void addEnvironmentVariable (const std::string &name, const std::string &value)
  Adds a given tuple to this->environmentVariables.
- void addPathValue (const std::string &pathValue)
  Add's a given value to this->pathValues.
- const std::string & getOutputFile () const
  Getter for this->outputfile.
- bool getHideShell () const
  Getter for this->hideShell.
- const std::optional< std::string > & getApplication () const
  Getter for this->application.
- const std::vector< std::string > & getCommands () const
  Getter for this->commands.
- const std::vector< std::tuple< std::string, std::string > > & getEnvironmentVariables () const
  Getter for this->environmentVariables.
- const std::vector< std::string > & getPathValues () const
  Getter for this->pathValues.

Private Attributes

- std::string outputfile
- bool hideShell
- std::optional< std::string > application
- std::vector< std::string > commands
- std::vector< std::tuple< std::string, std::string > > environmentVariables
- std::vector< std::string > pathValues

9.6.1 Detailed Description

This class contains all data from the json file.

The data from the json file is parsed by the JsonHandler and then assigned to the attributes of an instance of this class. This class also handles a part of the error handling.

- {ReqFunc14}

Definition at line 32 of file FileData.hpp.

9.6.2 Member Function Documentation

9.6.2.1 addCommand()

```
void parsing::FileData::addCommand (
            const std::string & command )
```

Adds a given command to this->commands.

Makes sure, that the given command value is not empty and then add's it to the commands attribute.

Parameters

command	The command to be added

Exceptions

exceptions::InvalidValueException	

Definition at line 56 of file FileData.cpp.

9.6.2.2 addEnvironmentVariable()

```
void parsing::FileData::addEnvironmentVariable (
            const std::string & name,
            const std::string & value )
```

Adds a given tuple to this->environmentVariables.

Makes sure that neither the key nor the value is empty and then adds a tuple with both values to the environment↩ Variables attribute

Parameters

name	The name of the env variable
value	The value of the env variable

Exceptions

exceptions::InvalidValueException	

Definition at line 67 of file FileData.cpp.

9.6.2.3 addPathValue()

```
void parsing::FileData::addPathValue (
            const std::string & pathValue )
```

Add's a given value to this->pathValues.

Makes sure that the given value is not empty and then assigns it to the given pathValues attribute

Parameters

pathValue	The value to be added

Exceptions

exceptions::InvalidValueException	

Definition at line 83 of file FileData.cpp.

9.6.2.4 getApplication()

```
const std::optional< std::string > & parsing::FileData::getApplication ( ) const  [inline]
```

Getter for this->application.

Returns

The assigned application

Definition at line 122 of file FileData.hpp.

9.6.2.5 getCommands()

```
const std::vector< std::string > & parsing::FileData::getCommands ( ) const  [inline]
```

Getter for this->commands.

Returns

The vector of assigned commands

Definition at line 130 of file FileData.hpp.

9.6.2.6 getEnvironmentVariables()

```
const std::vector< std::tuple< std::string, std::string > > & parsing::FileData::getEnvironment↩
Variables ( ) const  [inline]
```

Getter for this->environmentVariables.

Returns

The vector of assigned env variables

Definition at line 139 of file FileData.hpp.

9.6.2.7 getHideShell()

```
bool parsing::FileData::getHideShell ( ) const  [inline]
```

Getter for this->hideShell.

Returns

The assigned value for hideshell

Definition at line 114 of file FileData.hpp.

References hideShell.

9.6.2.8 getOutputFile()

```
const std::string & parsing::FileData::getOutputFile ( ) const  [inline]
```

Getter for this->outputfile.

Returns

The assigned outputfile

Definition at line 106 of file FileData.hpp.

References outputfile.

9.6.2.9 getPathValues()

```
const std::vector< std::string > & parsing::FileData::getPathValues ( ) const  [inline]
```

Getter for this->pathValues.

Returns

The vector of assigned pathValues

Definition at line 147 of file FileData.hpp.

9.6.2.10 setApplication()

```
void parsing::FileData::setApplication (
            const std::string & newApplication )
```

Setter for this->application.

Set's the application attribute. Return's if the given string is empty.

Parameters

newApplication	THe application to be set

Definition at line 46 of file FileData.cpp.

9.6.2.11 setHideShell()

```
void parsing::FileData::setHideShell (
            bool newHideShell )  [inline]
```

Setter for this->hideshell.

Parameters

newHideShell	The hideshell value to be set

Definition at line 50 of file FileData.hpp.

References hideShell.

9.6.2.12 setOutputFile()

```
void parsing::FileData::setOutputFile (
            std::string & newOutputfile )
```

Setter for this->outputfile.

Checks that neither the given string is empty, nor that the outputfile is already set and then assigns the newOutputfile to the instance.

Parameters

newOutputfile	The outputfile to be set

Exceptions

exceptions::InvalidValueException	

Definition at line 18 of file FileData.cpp.

References outputfile.

9.6.3 Member Data Documentation

9.6.3.1 application

```
std::optional<std::string> parsing::FileData::application  [private]
```

Definition at line 154 of file FileData.hpp.

9.6.3.2 commands

```
std::vector<std::string> parsing::FileData::commands  [private]
```

Definition at line 156 of file FileData.hpp.

9.6.3.3 environmentVariables

```
std::vector<std::tuple<std::string, std::string> > parsing::FileData::environmentVariables
[private]
```

Definition at line 158 of file FileData.hpp.

9.6.3.4 hideShell

```
bool parsing::FileData::hideShell  [private]
```

Definition at line 153 of file FileData.hpp.

9.6.3.5 outputfile

```
std::string parsing::FileData::outputfile  [private]
```

Definition at line 152 of file FileData.hpp.

9.6.3.6 pathValues

```
std::vector<std::string> parsing::FileData::pathValues  [private]
```

Definition at line 160 of file FileData.hpp.

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

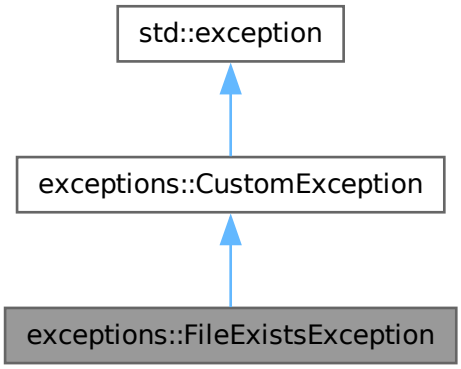
- src/include/FileData.hpp
- src/sources/FileData.cpp

9.7 exceptions::FileExistsException Class Reference

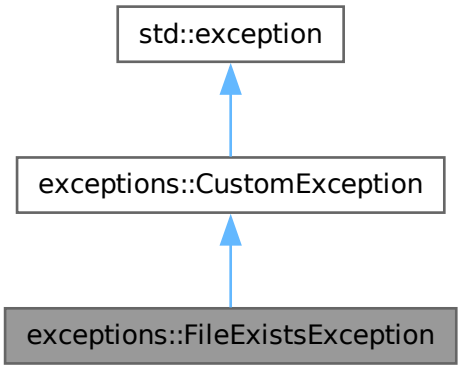
Exception for an already exisiting outputfile.

`#include <Exceptions.hpp>`

Inheritance diagram for exceptions::FileExistsException:



Collaboration diagram for exceptions::FileExistsException:



Public Member Functions

- FileExistsException (const std::string &file)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- const std::string file
- std::string message

9.7.1 Detailed Description

Exception for an already exisiting outputfile.

Definition at line 74 of file Exceptions.hpp.

9.7.2 Constructor & Destructor Documentation

9.7.2.1 FileExistsException()

```
exceptions::FileExistsException::FileExistsException (
            const std::string & file )  [inline], [explicit]
```

Note

I planned to use std::format, however it seems that the required Compiler Version is not yet available in the stable Ubuntu Repo!

Definition at line 80 of file Exceptions.hpp.

References file, and message.

9.7.3 Member Function Documentation

9.7.3.1 what()

```
const char * exceptions::FileExistsException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 92 of file Exceptions.hpp.

References message.

9.7.4 Member Data Documentation

9.7.4.1 file

```
const std::string exceptions::FileExistsException::file  [private]
```

Definition at line 76 of file Exceptions.hpp.

9.7.4.2 message

```
std::string exceptions::FileExistsException::message  [private]
```

Definition at line 77 of file Exceptions.hpp.

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

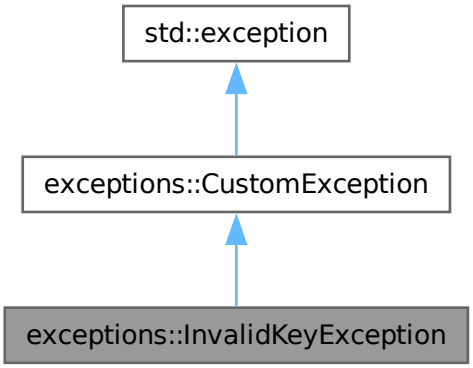
- src/include/Exceptions.hpp

9.8 exceptions::InvalidKeyException Class Reference

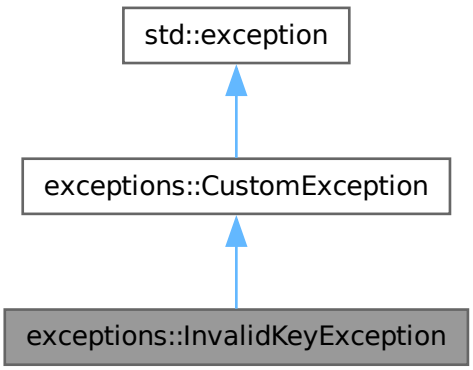
Exception for invalid keys.

```
#include <Exceptions.hpp>
```

Inheritance diagram for exceptions::InvalidKeyException:



Collaboration diagram for exceptions::InvalidKeyException:



Public Member Functions

- InvalidKeyException (const std::vector< std::tuple< int, std::string > > &keys)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- std::string message = "Invalid key found!"

9.8.1 Detailed Description

Exception for invalid keys.

This exception is thrown when a key is found within the json file, that is not part of the valid keys. It will also display the name and the line of the invalid key.

See also

parsing::KeyValidator::validKeys

parsing::KeyValidator::validEntryKeys

Definition at line 135 of file Exceptions.hpp.

9.8.2 Constructor & Destructor Documentation

9.8.2.1 InvalidKeyException()

```
exceptions::InvalidKeyException::InvalidKeyException (
            const std::vector< std::tuple< int, std::string > > & keys )  [inline], [explicit]
```

Definition at line 140 of file Exceptions.hpp.

9.8.3 Member Function Documentation

9.8.3.1 what()

```
const char * exceptions::InvalidKeyException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 149 of file Exceptions.hpp.

9.8.4 Member Data Documentation

9.8.4.1 message

```
std::string exceptions::InvalidKeyException::message = "Invalid key found!"  [private]
```

Definition at line 137 of file Exceptions.hpp.

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

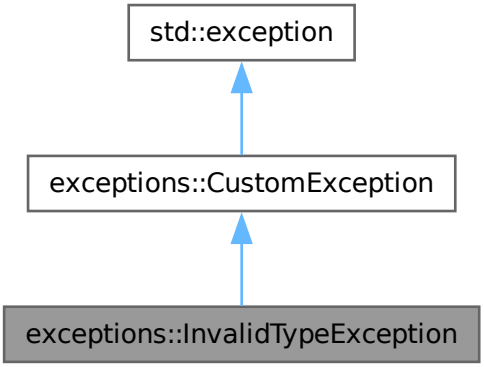
- src/include/Exceptions.hpp

9.9 exceptions::InvalidTypeException Class Reference

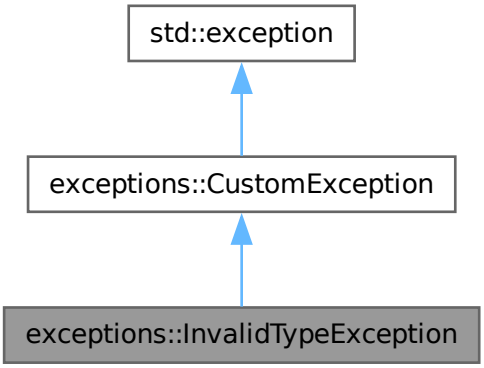
Exception for invalid types.

```
#include <Exceptions.hpp>
```

Inheritance diagram for exceptions::InvalidTypeException:



Collaboration diagram for exceptions::InvalidTypeException:



Public Member Functions

- InvalidTypeException (const std::string &type, int line)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- const std::string type
- std::string message

9.9.1 Detailed Description

Exception for invalid types.

This exception is thrown when the value of the "type" field within the entries is invalid (not "EXE", "PATH", "ENV"). It also prints the type and the line of the invalid type.

Definition at line 162 of file Exceptions.hpp.

9.9.2 Constructor & Destructor Documentation

9.9.2.1 InvalidTypeException()

```
exceptions::InvalidTypeException::InvalidTypeException (
            const std::string & type,
            int line )  [inline]
```

Note

I planned to use std::format, however it seems that the required Compiler Version is not yet available in the stable Ubuntu Repo!

Definition at line 168 of file Exceptions.hpp.

References message, and type.

9.9.3 Member Function Documentation

9.9.3.1 what()

```
const char * exceptions::InvalidTypeException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 179 of file Exceptions.hpp.

References message.

9.9.4 Member Data Documentation

9.9.4.1 message

```
std::string exceptions::InvalidTypeException::message  [private]
```

Definition at line 165 of file Exceptions.hpp.

9.9.4.2 type

```
const std::string exceptions::InvalidTypeException::type  [private]
```

Definition at line 164 of file Exceptions.hpp.

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

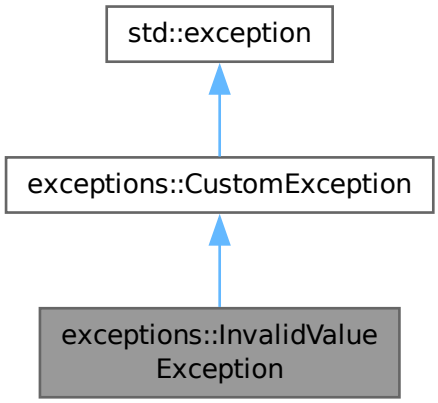
- src/include/Exceptions.hpp

9.10 exceptions::InvalidValueException Class Reference

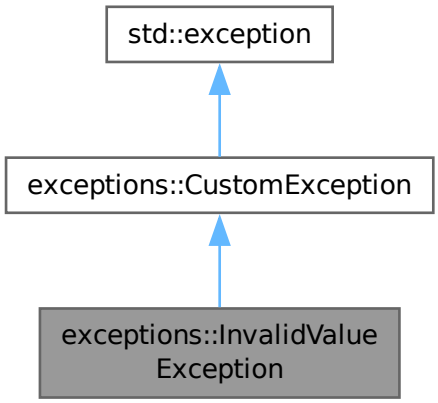
Exception for an ivalid (usually empty) value field.

`#include <Exceptions.hpp>`

Inheritance diagram for exceptions::InvalidValueException:



Collaboration diagram for exceptions::InvalidValueException:



Public Member Functions

- InvalidValueException (const std::string &key, const std::string &issue)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- const std::string key
- std::string message

9.10.1 Detailed Description

Exception for an ivalid (usually empty) value field.

Definition at line 101 of file Exceptions.hpp.

9.10.2 Constructor & Destructor Documentation

9.10.2.1 InvalidValueException()

```
exceptions::InvalidValueException::InvalidValueException (
            const std::string & key,
            const std::string & issue )  [inline]
```

Note

I planned to use std::format, however it seems that the required Compiler Version is not yet available in the stable Ubuntu Repo!

Definition at line 107 of file Exceptions.hpp.

References key, and message.

9.10.3 Member Function Documentation

9.10.3.1 what()

```
const char * exceptions::InvalidValueException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 119 of file Exceptions.hpp.

References message.

9.10.4 Member Data Documentation

9.10.4.1 key

```
const std::string exceptions::InvalidValueException::key  [private]
```

Definition at line 103 of file Exceptions.hpp.

9.10.4.2 message

```
std::string exceptions::InvalidValueException::message  [private]
```

Definition at line 104 of file Exceptions.hpp.

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

- src/include/Exceptions.hpp

9.11 parsing::JsonHandler Class Reference

This file reads all data from the json file.

```
#include <JsonHandler.hpp>
```

Public Member Functions

- JsonHandler ()
  Constructor without arguments.
- JsonHandler (const std::string &filename)
  The constructor.
- std::shared_ptr< FileData > getFileData ()
  Retrieve the data from the json file.

Private Member Functions

- void assignOutputFile () const
  Assigns the outputfile to this->data.
- void assignHideShell () const
  Assigns the hideshell value to this->data.
- void assignApplication () const
  Assigns application to this->data.
- void assignEntries () const
  Assigns entries to this->data.
- void assignCommand (const Json::Value &entry) const
  Assigns an command to this->data.
- void assignEnvironmentVariable (const Json::Value &entry) const
  Assigns an environmentVariable to this->data.
- void assignPathValue (const Json::Value &entry) const
  Assigns a path value to this->data.
- std::shared_ptr< FileData > createFileData ()
  Creates the FileData instance.

Static Private Member Functions

- static std::shared_ptr< Json::Value > parseFile (const std::string &filename)
  Parses the given json file.
- static bool containsBadCharacter (const std::string_view &str)
  Check if a string contains a bad character.

Private Attributes

- std::shared_ptr< Json::Value > root
- std::shared_ptr< FileData > data

9.11.1 Detailed Description

This file reads all data from the json file.

This file uses the jsoncpp library to parse all data from a json file, validate it to some degree.

See also

https://github.com/open-source-parsers/jsoncpp

Definition at line 47 of file JsonHandler.hpp.

9.11.2 Constructor & Destructor Documentation

9.11.2.1 JsonHandler() [1/2]

```
parsing::JsonHandler::JsonHandler ( )  [inline]
```

Constructor without arguments.

This constructor can be used to initialise an instance in an outer scope and then assign it values from an inner scope.

Definition at line 55 of file JsonHandler.hpp.

9.11.2.2 JsonHandler() [2/2]

```
parsing::JsonHandler::JsonHandler (
            const std::string & filename )  [explicit]
```

The constructor.

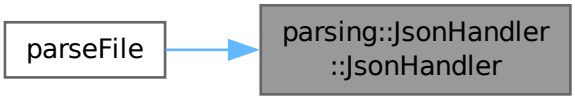
This constructor calls this->parseFile() when called.

Parameters

filename	Name of the json file

Definition at line 23 of file JsonHandler.cpp.

Here is the caller graph for this function:



9.11.3 Member Function Documentation

9.11.3.1 assignApplication()

```
void parsing::JsonHandler::assignApplication ( ) const  [private]
```

Assigns application to this->data.

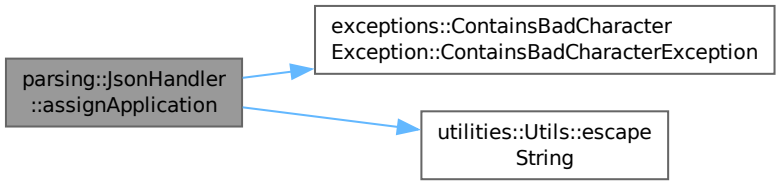
Retrieves the value of the application key from Json::Value this->root and defaults to an empty string.

- {ReqFunc16}

Definition at line 84 of file JsonHandler.cpp.

References exceptions::ContainsBadCharacterException::ContainsBadCharacterException(), and utilities::Utils::escapeString().

Here is the call graph for this function:



Here is the caller graph for this function:

9.11.3.2 assignCommand()

```
void parsing::JsonHandler::assignCommand (
            const Json::Value & entry ) const  [private]
```

Assigns an command to this->data.

- {ReqFunc12}

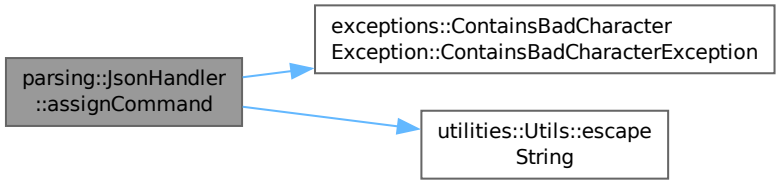
Parameters

entry	The entry with the command

Definition at line 118 of file JsonHandler.cpp.

References exceptions::ContainsBadCharacterException::ContainsBadCharacterException(), and utilities::Utils::escapeString().

Here is the call graph for this function:



9.11.3.3 assignEntries()

```
void parsing::JsonHandler::assignEntries ( ) const  [private]
```

Assigns entries to this->data.

Goes through each of the entries from Json::Value this->root and calls the relevant method depending on it's type. All "type" keys should be valid by this point.

- {ReqFunc10}

Parameters

entry	Json::Value containing an array with entries

Exceptions

exceptions::UnreachableCodeException	

Definition at line 94 of file JsonHandler.cpp.

Here is the caller graph for this function:

9.11.3.4 assignEnvironmentVariable()

```
void parsing::JsonHandler::assignEnvironmentVariable (
            const Json::Value & entry ) const  [private]
```

Assigns an environmentVariable to this->data.

- {ReqFunc11}

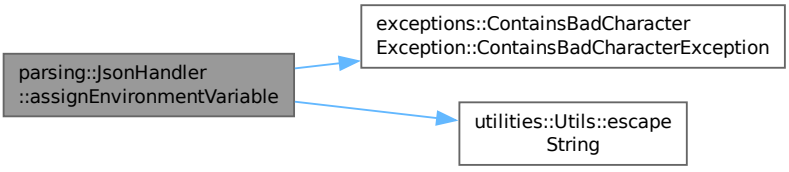
Parameters

entry	The entry with the environmentVariable

Definition at line 128 of file JsonHandler.cpp.

References exceptions::ContainsBadCharacterException::ContainsBadCharacterException(), and utilities::Utils::escapeString().

Here is the call graph for this function:



9.11.3.5 assignHideShell()

```
void parsing::JsonHandler::assignHideShell ( ) const  [private]
```

Assigns the hideshell value to this->data.

Retrieves the value of the hideshell key from Json::Value this->root and defaults to negative.

- {ReqFunc9}

Definition at line 78 of file JsonHandler.cpp.

Here is the caller graph for this function:

9.11.3.6 assignOutputFile()

```
void parsing::JsonHandler::assignOutputFile ( ) const  [private]
```

Assigns the outputfile to this->data.

Retrieves the outputfile from Json::Value this->root and makes sure, that the file doesn't already exist.

- {ReqFunc8}

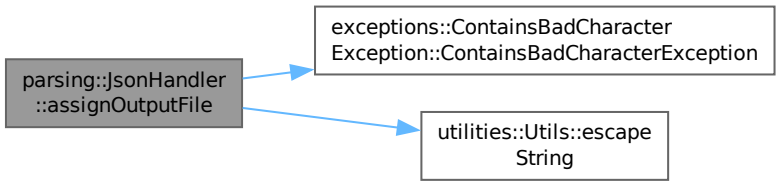
Exceptions

exceptions::FileExistsException	

Definition at line 68 of file JsonHandler.cpp.

References exceptions::ContainsBadCharacterException::ContainsBadCharacterException(), and utilities::Utils::escapeString().

Here is the call graph for this function:



Here is the caller graph for this function:

9.11.3.7 assignPathValue()

```
void parsing::JsonHandler::assignPathValue (
            const Json::Value & entry ) const  [private]
```

Assigns a path value to this->data.

- {ReqFunc13}

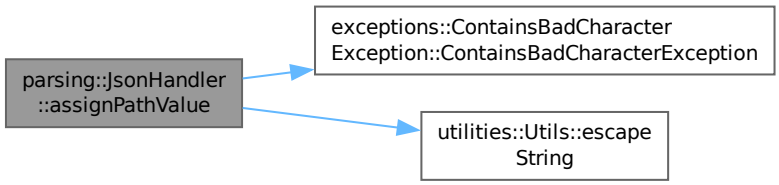
Parameters

entry	The entry with the path value

Definition at line 144 of file JsonHandler.cpp.

References exceptions::ContainsBadCharacterException::ContainsBadCharacterException(), and utilities::Utils::escapeString().

Here is the call graph for this function:



9.11.3.8 containsBadCharacter()

```
bool parsing::JsonHandler::containsBadCharacter (
            const std::string_view & str )  [static], [private]
```

Check if a string contains a bad character.

This method checks if a given string contains a bad character. Bad characters are declared in a set within the function. This is done to ensure, that no characters such as line breaks, break the later generated batch file.

Parameters

str	The string to be checked

@bool If the string contains a bad char or not

Definition at line 154 of file JsonHandler.cpp.

9.11.3.9 createFileData()

```
std::shared_ptr< FileData > parsing::JsonHandler::createFileData ( )  [private]
```

Creates the FileData instance.

Instantiates the FileData instance, calls all nessecary functions and returns a shared pointer to it.

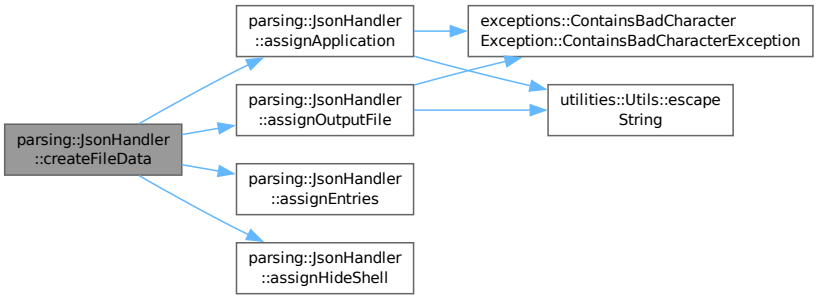
Returns

Pointer to the created instance of FileData

Definition at line 58 of file JsonHandler.cpp.

References assignApplication(), assignEntries(), assignHideShell(), and assignOutputFile().

Here is the call graph for this function:



Here is the caller graph for this function:

9.11.3.10 getFileData()

```
std::shared_ptr< FileData > parsing::JsonHandler::getFileData ( )
```

Retrieve the data from the json file.

This method calls this->createFileData() needed to retrieve the values from the Json::Value this->root and then returns a shared pointer to the created FileData object.

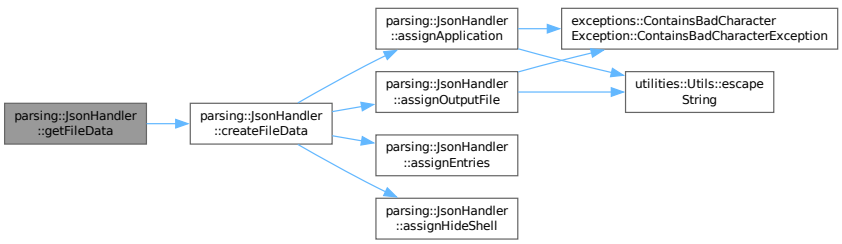
Returns

Pointer to the FileData Object with the parsed data from json

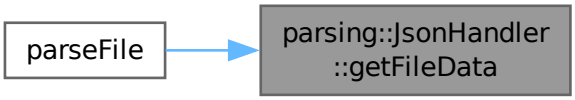
Definition at line 53 of file JsonHandler.cpp.

References createFileData().

Here is the call graph for this function:



Here is the caller graph for this function:



9.11.3.11 parseFile()

```
std::shared_ptr< Json::Value > parsing::JsonHandler::parseFile (
            const std::string & filename )  [static], [private]
```

Parses the given json file.

This method first creates a new Json::Value instance and then tries to parse the given json file. It then validates the keys of the instance using the KeyValidator class.

Parameters

filename	The name of the file wich should be parsed

Returns

A shared pointer to the Json::Value instance

See also

KeyValidator::validateKeys()

Exceptions

exceptions::ParsingException	
exceptions::InvalidKeyException	

Definition at line 28 of file JsonHandler.cpp.

9.11.4 Member Data Documentation

9.11.4.1 data

```
std::shared_ptr<FileData> parsing::JsonHandler::data  [private]
```

Definition at line 179 of file JsonHandler.hpp.

9.11.4.2 root

```
std::shared_ptr<Json::Value> parsing::JsonHandler::root  [private]
```

Definition at line 178 of file JsonHandler.hpp.

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

- src/include/JsonHandler.hpp
- src/sources/JsonHandler.cpp

9.12 parsing::KeyValidator Class Reference

Validates keys of a Json::Value object.

```
#include <KeyValidator.hpp>
```

Public Member Functions

- std::vector< std::tuple< int, std::string > > validateKeys (const Json::Value &root, const std::string &filename)

  Validate keys off a Json::Value object.

Static Public Member Functions

- static KeyValidator & getInstance ()

  Get the instance of this class.

Private Member Functions

- std::vector< std::tuple< int, std::string > > getWrongKeys (const Json::Value &root, const std::string &filename) const

  Retrieve the wrong keys from a Json::Value object.
- void validateTypes (const std::string &filename, const Json::Value &entry, const std::unordered_set< std::string > &entryKeys)

  Validates types from the entries array.
- std::vector< std::tuple< int, std::string > > validateEntries (const std::string &filename, const std::unordered_set< std::string > &entryKeys) const

  Validates that keys within the entries array are valid.

Static Private Member Functions

- static std::optional< int > getUnknownKeyLine (const std::string &filename, const std::string &wrongKey)

  Get the line of an unknown key.

Private Attributes

- std::unordered_set< std::string > validKeys
- std::unordered_set< std::string > validEntryKeys
- std::unordered_map< std::string_view, std::vector< std::string > > typeToKeys

9.12.1 Detailed Description

Validates keys of a Json::Value object.

This class is singleton. That way when multiple files are parsed with the application, the maps for valid keys and the set for the type entries field only have to be allocated once when parsing multiple files.

- {ReqFunc17}

Definition at line 31 of file KeyValidator.hpp.

9.12.2 Member Function Documentation

9.12.2.1 getInstance()

```
KeyValidator & parsing::KeyValidator::getInstance ( )  [static]
```

Get the instance of this class.

Returns

Reference to the instance of this class

Definition at line 20 of file KeyValidator.cpp.

9.12.2.2 getUnknownKeyLine()

```
std::optional< int > parsing::KeyValidator::getUnknownKeyLine (
            const std::string & filename,
            const std::string & wrongKey )  [static], [private]
```

Get the line of an unknown key.

This method goes through each line of the given file and checks if the line contains the given key. Returns std::nullopt if the file can't be opened or the key was not found.

Parameters

filename	The filename which should contain the key
wrongKey	The key to be searched for

Returns

The line of the key, if it was found

Definition at line 133 of file KeyValidator.cpp.

9.12.2.3 getWrongKeys()

```
std::vector< std::tuple< int, std::string > > parsing::KeyValidator::getWrongKeys (
            const Json::Value & root,
            const std::string & filename ) const  [private]
```

Retrieve the wrong keys from a Json::Value object.

This method goes through each key of the Json::Value object and makes sure it's valid.

Parameters

root	The Json::Value object to be validated.
filename	The filename from which 'root' is from.

Returns

A vector with tuples, containing the line and name of invalid types.

Definition at line 55 of file KeyValidator.cpp.

9.12.2.4 validateEntries()

```
std::vector< std::tuple< int, std::string > > parsing::KeyValidator::validateEntries (
            const std::string & filename,
            const std::unordered_set< std::string > & entryKeys ) const  [private]
```

Validates that keys within the entries array are valid.

This mehthod goes through each of the entries, and validates, that the keys are part of the validEntryKeys attribute.

Parameters

filename	The filename from which the entries are from
entryKeys	The keys of the entries

Returns

A vector with tuples, containing the line and name of invalid entrie keys

Definition at line 78 of file KeyValidator.cpp.

9.12.2.5 validateKeys()

```
std::vector< std::tuple< int, std::string > > parsing::KeyValidator::validateKeys (
            const Json::Value & root,
            const std::string & filename )
```

Validate keys off a Json::Value object.

This method goes through the MemberNames of a Json::Value object and validates, that they are part of the valid↩ Key attribute. It calls the nessecary methods to validate the keys within the entries array.

Parameters

root	The Json::Value object to be validated.
filename	The filename from which 'root' is from.

Returns

A vector with tuples, containing the line and name of invalid types.

Definition at line 27 of file KeyValidator.cpp.

9.12.2.6 validateTypes()

```
void parsing::KeyValidator::validateTypes (
            const std::string & filename,
            const Json::Value & entry,
            const std::unordered_set< std::string > & entryKeys )  [private]
```

Validates types from the entries array.

This method goes makes sure, that the type of the given entry is valid and that it contains it's necessary keys. It will throw an exception if the type is missing, if the type is invalid or if the type is missing a key.

Note

Unnecessary keys within a type entry, don't cause an exception and are ignored.

Parameters

filename	The filename from which 'entry' is from
entry	The entry to be validated
entryKeys	The keys of the entry

Exceptions

exceptions::MissingTypeException	
exceptions::InvalidTypeException	
exceptions::MissingKeyException	

Definition at line 100 of file KeyValidator.cpp.

References exceptions::MissingTypeException::MissingTypeException().

Here is the call graph for this function:

9.12.3 Member Data Documentation

9.12.3.1 typeToKeys

```
std::unordered_map<std::string_view, std::vector<std::string> > parsing::KeyValidator::type↩
ToKeys  [private]
```

Initial value:

```
= {
        {"EXE", {"command"}}, {"PATH", {"path"}}, {"ENV", {"key", "value"}}
    }
```

Note

Changed from if/else clause within function to map in 0.2.1

Definition at line 145 of file KeyValidator.hpp.

9.12.3.2 validEntryKeys

```
std::unordered_set<std::string> parsing::KeyValidator::validEntryKeys  [private]
```

Initial value:

```
= {"type", "key", "value",
        "path", "command"
    }
```

Note

Changed from vector to unordered_set in 0.2.1 - as this shoud improve lookup performance from O(n) to O(1)

Definition at line 138 of file KeyValidator.hpp.

9.12.3.3 validKeys

```
std::unordered_set<std::string> parsing::KeyValidator::validKeys  [private]
```

Initial value:

```
= {"outputfile", "hideshell",
        "entries", "application"
    }
```

Note

Changed from vector to unordered_set in 0.2.1 - as this shoud improve lookup performance from O(n) to O(1)

Definition at line 131 of file KeyValidator.hpp.

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

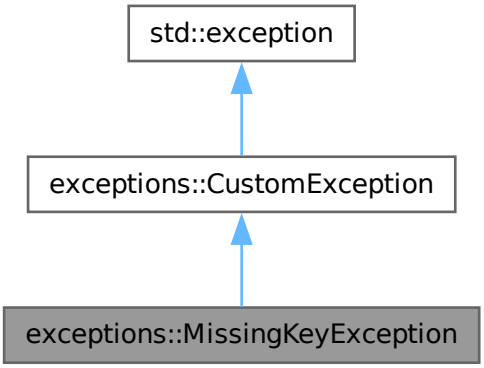
- src/include/KeyValidator.hpp
- src/sources/KeyValidator.cpp

9.13 exceptions::MissingKeyException Class Reference

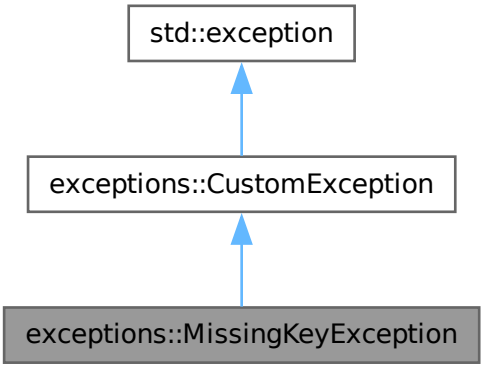
Exception for missing keys within entries.

```
#include <Exceptions.hpp>
```

Inheritance diagram for exceptions::MissingKeyException:



Collaboration diagram for exceptions::MissingKeyException:



Public Member Functions

- MissingKeyException (const std::string &key, const std::string &type)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- std::string message
- std::string type
- std::string key

9.13.1 Detailed Description

Exception for missing keys within entries.

This exception is thrown when a key (such as "path" or "command") is missing from an entry. It also prints the type and which key it is missing.

Definition at line 191 of file Exceptions.hpp.

9.13.2 Constructor & Destructor Documentation

9.13.2.1 MissingKeyException()

```
exceptions::MissingKeyException::MissingKeyException (
            const std::string & key,
            const std::string & type )  [inline]
```

Note

I planned to use std::format, however it seems that the required Compiler Version is not yet available in the stable Ubuntu Repo!

Definition at line 198 of file Exceptions.hpp.

References key, message, and type.

9.13.3 Member Function Documentation

9.13.3.1 what()

```
const char * exceptions::MissingKeyException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 210 of file Exceptions.hpp.

References message.

9.13.4 Member Data Documentation

9.13.4.1 key

```
std::string exceptions::MissingKeyException::key  [private]
```

Definition at line 195 of file Exceptions.hpp.

9.13.4.2 message

```
std::string exceptions::MissingKeyException::message  [private]
```

Definition at line 193 of file Exceptions.hpp.

9.13.4.3 type

```
std::string exceptions::MissingKeyException::type  [private]
```

Definition at line 194 of file Exceptions.hpp.

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

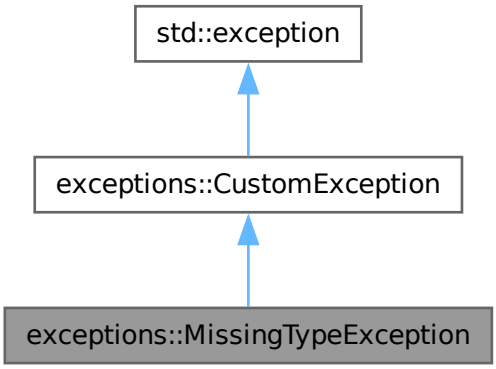
- src/include/Exceptions.hpp

9.14 exceptions::MissingTypeException Class Reference

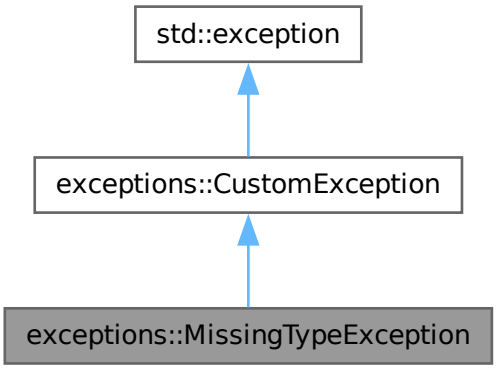
Exception for missing types of entries.

`#include <Exceptions.hpp>`

Inheritance diagram for exceptions::MissingTypeException:



Collaboration diagram for exceptions::MissingTypeException:



Public Member Functions

- MissingTypeException ()
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- std::string message = "Missing \"type\" key for at least one entry!"

9.14.1 Detailed Description

Exception for missing types of entries.

This exception is thrown, when an entry is missing it's "type" key.

Definition at line 221 of file Exceptions.hpp.

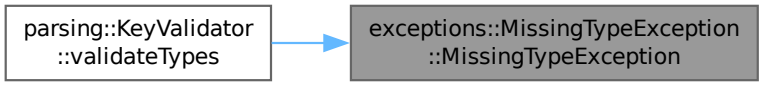
9.14.2 Constructor & Destructor Documentation

9.14.2.1 MissingTypeException()

```
exceptions::MissingTypeException::MissingTypeException ( )  [inline]
```

Definition at line 226 of file Exceptions.hpp.

Here is the caller graph for this function:



9.14.3 Member Function Documentation

9.14.3.1 what()

```
const char * exceptions::MissingTypeException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 229 of file Exceptions.hpp.

9.14.4 Member Data Documentation

9.14.4.1 message

```
std::string exceptions::MissingTypeException::message = "Missing \"type\" key for at least one entry!"  [private]
```

Definition at line 223 of file Exceptions.hpp.

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

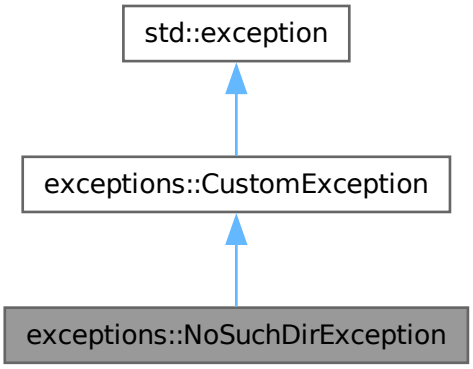
- src/include/Exceptions.hpp

9.15 exceptions::NoSuchDirException Class Reference

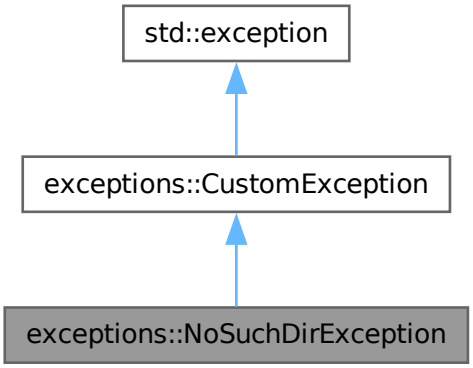
Exception for when a directory does not exist.

```
#include <Exceptions.hpp>
```

Inheritance diagram for exceptions::NoSuchDirException:



Collaboration diagram for exceptions::NoSuchDirException:



Public Member Functions

- NoSuchDirException (const std::string &dir)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- std::string message

9.15.1 Detailed Description

Exception for when a directory does not exist.

Definition at line 277 of file Exceptions.hpp.

9.15.2 Constructor & Destructor Documentation

9.15.2.1 NoSuchDirException()

```
exceptions::NoSuchDirException::NoSuchDirException (
            const std::string & dir )  [inline], [explicit]
```

Definition at line 282 of file Exceptions.hpp.

References message.

Here is the caller graph for this function:

9.15.3 Member Function Documentation

9.15.3.1 what()

```
const char * exceptions::NoSuchDirException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 286 of file Exceptions.hpp.

References message.

9.15.4 Member Data Documentation

9.15.4.1 message

```
std::string exceptions::NoSuchDirException::message  [private]
```

Definition at line 279 of file Exceptions.hpp.

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

- src/include/Exceptions.hpp

9.16 options Struct Reference

The struct containing all possible options.

```
#include <CommandLineHandler.hpp>
```

9.16.1 Detailed Description

The struct containing all possible options.

This struct contains all long and short options which can be used and will be parsed using "getopt.h"

- {ReqNonFunc4}

See also

CommandLineHandler

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

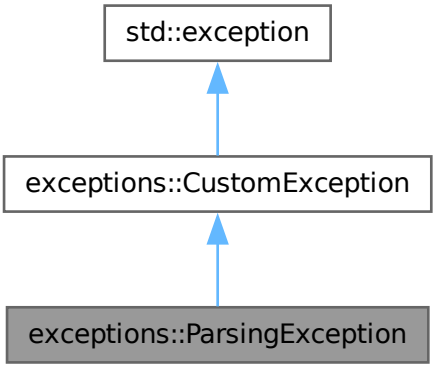
- src/include/CommandLineHandler.hpp

9.17 exceptions::ParsingException Class Reference

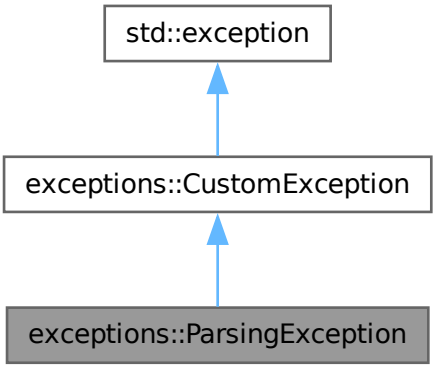
Exception for syntax errors within the json file.

`#include <Exceptions.hpp>`

Inheritance diagram for exceptions::ParsingException:



Collaboration diagram for exceptions::ParsingException:



Public Member Functions

- ParsingException (const std::string &file)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- const std::string file
- std::string message

9.17.1 Detailed Description

Exception for syntax errors within the json file.

Definition at line 46 of file Exceptions.hpp.

9.17.2 Constructor & Destructor Documentation

9.17.2.1 ParsingException()

```
exceptions::ParsingException::ParsingException (
            const std::string & file )  [inline], [explicit]
```

Note

I planned to use std::format, however it seems that the required Compiler Version is not yet available in the stable Ubuntu Repo!

Definition at line 52 of file Exceptions.hpp.

References file, and message.

9.17.3 Member Function Documentation

9.17.3.1 what()

```
const char * exceptions::ParsingException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 65 of file Exceptions.hpp.

References message.

9.17.4 Member Data Documentation

9.17.4.1 file

```
const std::string exceptions::ParsingException::file  [private]
```

Definition at line 48 of file Exceptions.hpp.

9.17.4.2 message

```
std::string exceptions::ParsingException::message  [private]
```

Definition at line 49 of file Exceptions.hpp.

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

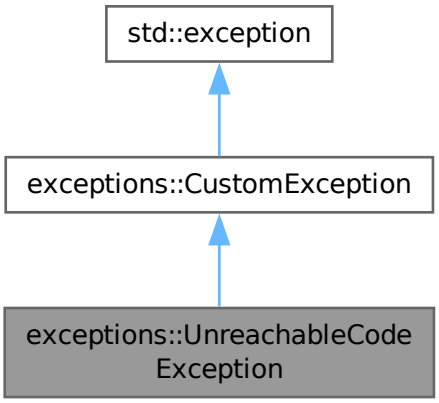
- src/include/Exceptions.hpp

9.18 exceptions::UnreachableCodeException Class Reference

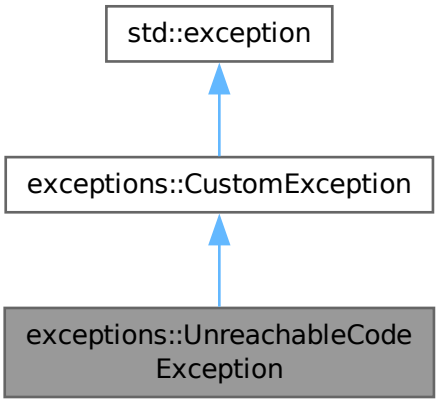
Exception for when the application reaches code it shouldn't reach.

```
#include <Exceptions.hpp>
```

Inheritance diagram for exceptions::UnreachableCodeException:



Collaboration diagram for exceptions::UnreachableCodeException:



Public Member Functions

- UnreachableCodeException (const std::string &message)
- const char * what () const noexcept override

Public Member Functions inherited from exceptions::CustomException

- const char * what () const noexcept override

Private Attributes

- std::string message

9.18.1 Detailed Description

Exception for when the application reaches code it shouldn't reach.

Definition at line 238 of file Exceptions.hpp.

9.18.2 Constructor & Destructor Documentation

9.18.2.1 UnreachableCodeException()

```
exceptions::UnreachableCodeException::UnreachableCodeException (
            const std::string & message )  [inline], [explicit]
```

Definition at line 243 of file Exceptions.hpp.

References message.

9.18.3 Member Function Documentation

9.18.3.1 what()

```
const char * exceptions::UnreachableCodeException::what ( ) const  [inline], [override], [noexcept]
```

Definition at line 250 of file Exceptions.hpp.

References message.

9.18.4 Member Data Documentation

9.18.4.1 message

```
std::string exceptions::UnreachableCodeException::message  [private]
```

Definition at line 240 of file Exceptions.hpp.

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

- src/include/Exceptions.hpp

9.19 utilities::Utils Class Reference

Responsible for utility function.

```
#include <Utils.hpp>
```

Static Public Member Functions

- static void setupEasyLogging (const std::string &configFile)

  Set up easylogging.
- static bool handleParseException (const std::exception &e, const std::vector< std::string >::iterator &file, const std::vector< std::string > &files)

  Handle an exception within the main parsing loop.
- static bool askToContinue (const std::string &prompt="Do you want to continue? (Y/N)\n")

  Asks if the user wants to continue.
- static void checkConfigFile (const std::string &configFile)

  Checks if the easylogging-config file exists.
- static const std::string & checkDirectory (std::string &directory)

  Checks if the given directory exists and is valid.
- static std::string escapeString (const std::string &str)

  Escape any unwanted escape sequences in a string.

9.19.1 Detailed Description

Responsible for utility function.

This class is responsible for handling miscellaneous utility functions which be used throughout the whole project.

Definition at line 42 of file Utils.hpp.

9.19.2 Member Function Documentation

9.19.2.1 askToContinue()

```
bool utilities::Utils::askToContinue (
            const std::string & prompt = "Do you want to continue? (Y/N)\n" )  [static]
```

Asks if the user wants to continue.

Asks the user if they want to continue and prompts them for a response.

Parameters

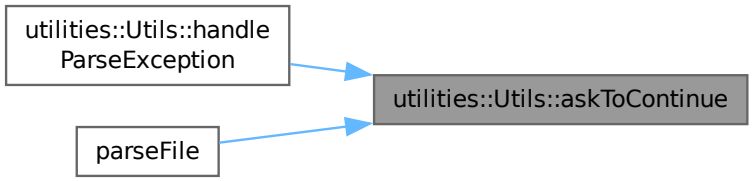
prompt	(Optional) A custom prompt to be used.

Returns

Returns true if the user wants to continue and false otherwise.

Definition at line 34 of file Utils.cpp.

Here is the caller graph for this function:



9.19.2.2 checkConfigFile()

```
void utilities::Utils::checkConfigFile (
            const std::string & configFile )  [static]
```

Checks if the easylogging-config file exists.

Parameters

configFile	The config file to be checked

Definition at line 55 of file Utils.cpp.

Here is the caller graph for this function:

9.19.2.3 checkDirectory()

```
const std::string & utilities::Utils::checkDirectory (
            std::string & directory )  [static]
```

Checks if the given directory exists and is valid.

This function checks if the given directory exists and is valid. If the directory does not end with a '/' or a '\', it will be added.

Parameters

directory	The directory to be checked

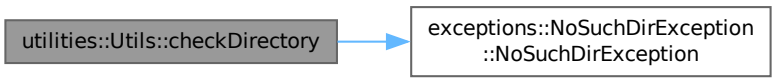
Returns

The checked directory

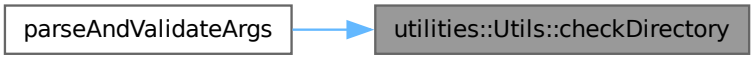
Definition at line 65 of file Utils.cpp.

References exceptions::NoSuchDirException::NoSuchDirException().

Here is the call graph for this function:



Here is the caller graph for this function:



9.19.2.4 escapeString()

```
std::string utilities::Utils::escapeString (
            const std::string & str )  [static]
```

Escape any unwanted escape sequences in a string.

This function takes a string and escapes already existing escape sequences. E.g. "\n" would become "\\n".

Parameters

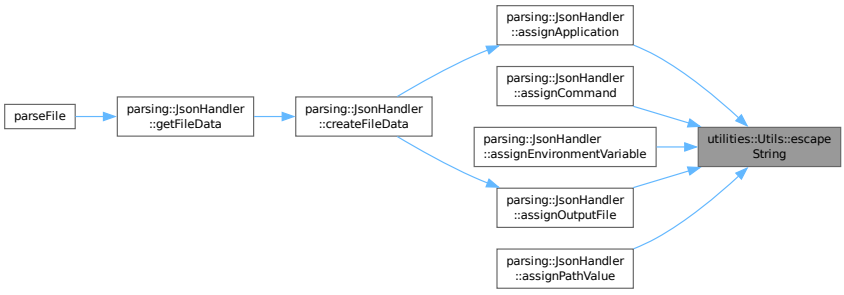
str	The string to be escaped

Returns

The processed string

Definition at line 97 of file Utils.cpp.

Here is the caller graph for this function:



9.19.2.5 handleParseException()

```
bool utilities::Utils::handleParseException (
            const std::exception & e,
```

```
            const std::vector< std::string >::iterator & file,
            const std::vector< std::string > & files )  [static]
```

Handle an exception within the main parsing loop.

This function handles an exception within the main parsing loop. It displays the error message and asks the user if they want to continue.

- Moved to Utils in 0.2.2 to improve readibility in main.cpp

Parameters

e	The exception to be handled
file	The file which caused the exception
files	The list of files

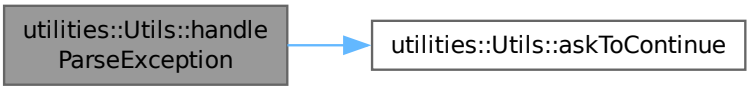
Returns

Returns true if the user wants to continue and false otherwise

Definition at line 77 of file Utils.cpp.

References askToContinue().

Here is the call graph for this function:



9.19.2.6 setupEasyLogging()

```
void utilities::Utils::setupEasyLogging (
            const std::string & configFile )  [static]
```

Set up easylogging.

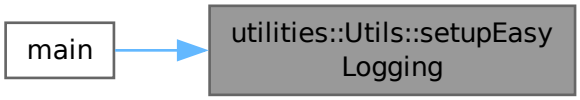
This function sets up the easylogging library based on the given config file.

Parameters

configFile	The config file which is used

Definition at line 25 of file Utils.cpp.

Here is the caller graph for this function:



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

- src/include/Utils.hpp
- src/sources/Utils.cpp

Chapter 10

File Documentation

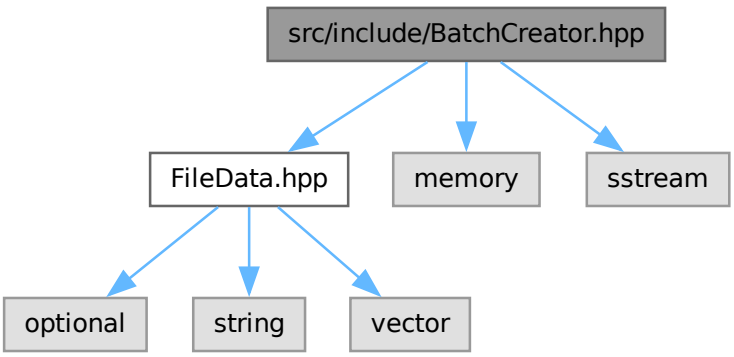
10.1 README.md File Reference

10.2 src/include/BatchCreator.hpp File Reference

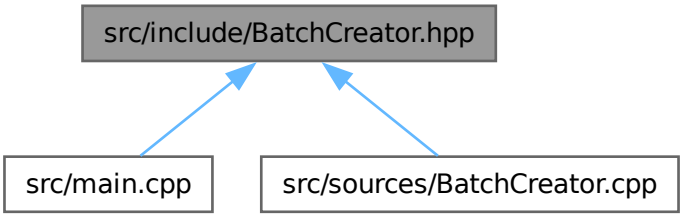
Contains the BatchCreator class.

```
#include "FileData.hpp"
#include <memory>
#include <sstream>
```

Include dependency graph for BatchCreator.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class BatchCreator

  Creates a batch file from a FileData obeject.

10.2.1 Detailed Description

Contains the BatchCreator class.

Author

Maximilian Rodler

Date

2024-04-22

Version

0.2.1

See also

BatchCreator

src/sources/BatchCreator.cpp

Copyright

See LICENSE file

Definition in file BatchCreator.hpp.

10.3 BatchCreator.hpp

Go to the documentation of this file.

```
00001 /**
00002  * @file BatchCreator.hpp
00003  * @author Maximilian Rodler
00004  * @date 2024-04-22
00005  * @version 0.2.1
00006  * @brief Contains the BatchCreator class.
00007  *
00008  * @see BatchCreator
00009  *
00010  * @see src/sources/BatchCreator.cpp
00011  *
00012  * @copyright See LICENSE file
00013  *
00014  */
00015
00016 #include "FileData.hpp"
00017 #include <memory>
00018 #include <sstream>
00019
00020 /**
00021  * @class BatchCreator
00022  * @brief Creates a batch file from a FileData obeject
00023  * @details
00024  * Uses a FileData object to create a string stream, which can then
00025  * be streamed into a batch file.
00026  *
00027  * @see FileData
00028  */
00029 class BatchCreator {
00030 public:
00031     /**
00032      * @brief Initializes the BatchCreator
00033      * @details
00034      * Creates a stringstream and calls the createBatch() function
00035      *
00036      * @param filenData A shared pointer to the FileData object
00037      *
00038      */
00039     explicit BatchCreator(std::shared_ptr<parsing::FileData> fileData);
00040
00041     /**
00042      * @brief Returns the stringstream
00043      *
00044      * @return A shared pointer to the stringstream
00045      */
00046     [[nodiscard]] std::shared_ptr<std::stringstream> getDataStream() const {
00047         return dataStream;
00048     }
00049
00050 private:
00051     std::shared_ptr<std::stringstream>
00052     dataStream; /** < stringstream for the batch file */
00053
00054     std::shared_ptr<parsing::FileData> fileData; /** < FileData object */
00055
00056     /**
00057      * @brief Creates the batch stream
00058      * @details
00059      * The method calls all necessary functions to create the stream for the batch
00060      * file.
00061      *
00062      */
00063     void createBatch() const;
00064
00065     /**
00066      * @brief Wirtes the start of the batch file
00067      * @details
00068      * Writes the start of the batch file, which is always the same:
00069      * - setzt ECHO off
00070      * - startet cmd.exe
00071      *
00072      */
00073     void writeStart() const;
00074
00075     /**
00076      * @brief Writes the visibility of the shell
00077      * @details
00078      * This hides/shows the shell after the batch file has been executed
00079      * - {ReqFunc19}
00080      *
00081      */
00082     void writeHideShell() const;
```

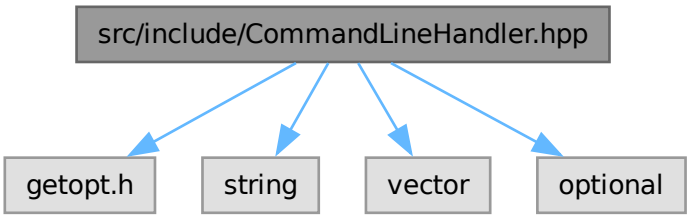
```
00083
00084     /**
00085      * @brief Writes the commands to be executed
00086      * @details
00087      * Writes the commands to be executed from the FileData object.
00088      * Those originiate from the "commands" entry in the json file
00089      * - {ReqFunc20}
00090      * - {ReqFunc22}
00091      *
00092      */
00093     void writeCommands() const;
00094
00095     /**
00096      * @brief Set's environment variables
00097      * @details
00098      * Set's the envirment variables for the batch.
00099      * Those originiate from the "ENV" entry in the json file with
00100      * the following syntax:
00101      * - Entry under "key" = Entry under "value"
00102      * - {ReqFunc20}
00103      * - {ReqFunc21}
00104      *
00105      */
00106     void writeEnvVariables() const;
00107
00108     /**
00109      * @brief Set's the path variables
00110      * @details Set's the path variables for the batch.
00111      * Those originiate from the "PATH" entry in the json file
00112      * - {ReqFunc20}
00113      * - {ReqFunc23}
00114      *
00115      */
00116     void writePathVariables() const;
00117
00118     /**
00119      * @brief If an application is given, it is started at the end
00120      * @details
00121      * If the key "application" is given in the json file, the application
00122      * is started at the end of the batch file.
00123      * - {ReqFunc16}
00124      * - {ReqFunc25}
00125      *
00126      */
00127     void writeApplication() const;
00128
00129     /**
00130      * @brief Writes the end of the batch file
00131      * @details
00132      * Writes the end of the batch file, which is always the same:
00133      * - @ECHO ON
00134      *
00135      */
00136     void writeEnd() const;
00137 };
```

10.4 src/include/CommandLineHandler.hpp File Reference

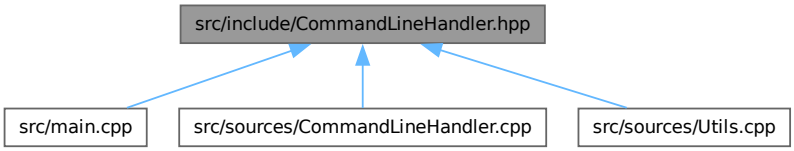
Responsible for the Command Line Interface.

```
#include <getopt.h>
#include <string>
#include <vector>
#include <optional>
```

Include dependency graph for CommandLineHandler.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class cli::CommandLineHandler

  Responsible for the Command Line Interface.

Namespaces

- namespace cli

  Includes everything regarding the CLI.

Variables

- static const struct option cli::options [ ]

10.4.1 Detailed Description

Responsible for the Command Line Interface.

Author

Simon Blum

Date

2024-04-26

Version

0.2.2

This file is responsible for the Command Line Interface. As such it includes things such as the CommandLine↩ Handler class, possible options and style helpers.

See also

cli

CommandLineHandler

options

StyleHelpers

src/sources/CommandLineHandler.cpp

Copyright

See LICENSE file

Definition in file CommandLineHandler.hpp.

10.5 CommandLineHandler.hpp

Go to the documentation of this file.

```
00001 /**
00002  * @file CommandLineHandler.hpp
00003  * @author Simon Blum
00004  * @date 2024-04-26
00005  * @version 0.2.2
00006  * @brief Responsible for the Command Line Interface.
00007  * @details
00008  * This file is responsible for the Command Line Interface.
00009  * As such it includes things such as the
00010  * CommandLineHandler class, possible options and style helpers.
00011  *
00012  * @see cli
00013  * @see CommandLineHandler
00014  * @see options
00015  * @see StyleHelpers
00016  *
00017  * @see src/sources/CommandLineHandler.cpp
00018  *
00019  * @copyright See LICENSE file
00020  */
00021 #ifndef COMMANDLINEHANDLER_HPP
00022 #define COMMANDLINEHANDLER_HPP
00023
00024
00025 #include <getopt.h>
00026 #include <string>
00027 #include <vector>
00028 #include <optional>
00029
00030 /**
00031  * @namespace cli
00032  * @brief Includes everything regarding the CLI
00033  * @details
00034  * This namespace includes all the code regarding the Command Line Interface.
00035  * This includes the CommandLineHandler Class, the struct for the options and
00036  * helpers for Styling.
```

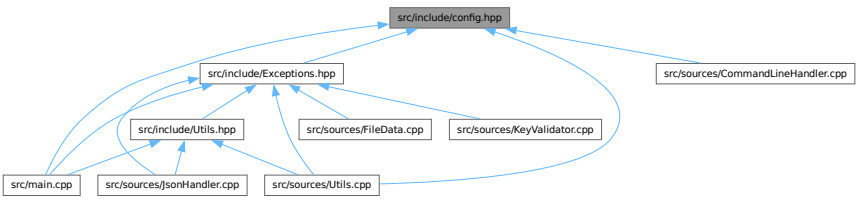
```
00037  *
00038  * @see CommandLineHandler
00039  * @see options
00040  * @see StyleHelpers
00041  */
00042 namespace cli {
00043
00044 /**
00045  * @class CommandLineHandler
00046  * @brief Responsible for the Command Line Interface.
00047  * @details
00048  * This class is responsible for parsing the command line arguments,
00049  * printing Help/Version/Credits messages and returning inputted files.
00050  *
00051  * @author Simon Blum
00052  * @date 2024-04-18
00053  * @version 0.1.5
00054  * @see options
00055  */
00056 class CommandLineHandler {
00057 public:
00058     /**
00059      * @brief Prints the help message.
00060      * @details
00061      * - {ReqFunc1}
00062      * - {ReqFunc2}
00063      *
00064      * @note This function ends the application.
00065      */
00066     [[noreturn]] static void printHelp();
00067     /**
00068      * @brief Prints the version message.
00069      *
00070      * @note This function ends the application.
00071      */
00072     [[noreturn]] static void printVersion();
00073     /**
00074      * @brief Prints the credits message.
00075      * @details
00076      * - {ReqFunc3}
00077      *
00078      * @note This function ends the application.
00079      */
00080     [[noreturn]] static void printCredits();
00081     /**
00082      * @brief Parses the Command Line Arguments.
00083      * @details
00084      * This function uses the "getopt.h" library to parse all options given
00085      * and then returns all files which are given as arguments.
00086      * - {ReqFunc4}
00087      * - {ReqFunc5}
00088      * - {ReqNonFunc4}
00089      *
00090      * @param argc The number of arguments given
00091      * @param argv The arguments given
00092      *
00093      * @return Returns a tuple containing the output directory and the files
00094      */
00095     static std::tuple<std::optional<std::string>, std::vector<std::string»
00096     parseArguments(int argc, char* argv[]);
00097     /**
00098      * @brief The Constructor of the CommandLineHandler Class
00099      * @note As all functions are static it should not be used and as such
00100      * is deleted.
00101      */
00102     CommandLineHandler() = delete;
00103     /**
00104      * @brief The Destructor of the CommandLineHandler Class
00105      * @note As all functions are static it should not be used and as such
00106      * is deleted.
00107      */
00108     ~CommandLineHandler() = delete;
00109 };
00110
00111 /**
00112  * @struct options
00113  * @brief The struct containing all possible options.
00114  * @details
00115  * This struct contains all long and short options which can be used and will be
00116  * parsed using "getopt.h"
00117  * - {ReqNonFunc4}
00118  *
00119  * @see CommandLineHandler
00120  */
00121 static const struct option options[] = {
00122     {"help", no_argument, nullptr, 'h'}, /** < Help */
00123     {"version", no_argument, nullptr, 'v'}, /** < Version */
```

```
00124     {"credits", no_argument, nullptr, 'c'}, /** < Credits */
00125     {"verbose", no_argument, nullptr, 0}, /** < Verbose */
00126     {"outdir", required_argument, nullptr, 'o'}, /** < Output directory */
00127     nullptr
00128 };
00129
00130 /**
00131  * @defgroup StyleHelpers
00132  * @brief Static variables to help with CLI styling.
00133  * @details
00134  * A group of strings, that use escape sequences to easily style the
00135  * command line interface on Unix systems.
00136  * When compiling for Windows all of these strings will be empty, as escape
00137  * sequences can't be used the same way.
00138  *
00139  * @{
00140  */
00141 #ifdef IS_UNIX // CLI Formatting for Linux
00142 static const std::string CLEAR_TERMINAL = "\033[2J\033[1;1H";
00143 static const std::string RESET = "\033[0m";
00144 static const std::string RED = "\033[0;31m";
00145 static const std::string GREEN = "\033[0;32m";
00146 static const std::string YELLOW = "\033[0;33m";
00147 static const std::string BLUE = "\033[0;34m";
00148 static const std::string MAGENTA = "\033[0;35m";
00149 static const std::string CYAN = "\033[0;36m";
00150 static const std::string WHITE = "\033[0;37m";
00151 static const std::string BOLD = "\033[1m";
00152 static const std::string UNDERLINE = "\033[4m";
00153 static const std::string ITALIC = "\033[3m";
00154 //@note Windows doesn't support ANSI escape codes the same way
00155 #elif defined(IS_WINDOWS)
00156 static const std::string CLEAR_TERMINAL = "";
00157 static const std::string RESET = "";
00158 static const std::string RED = "";
00159 static const std::string GREEN = "";
00160 static const std::string YELLOW = "";
00161 static const std::string BLUE = "";
00162 static const std::string MAGENTA = "";
00163 static const std::string CYAN = "";
00164 static const std::string WHITE = "";
00165 static const std::string BOLD = "";
00166 static const std::string UNDERLINE = "";
00167 static const std::string ITALIC = "";
00168 #endif
00169 /** @} */ // end of group StyleHelpers
00170
00171 } // namespace cli
00172
00173 #endif // COMMANDLINEHANDLER_HPP
```

10.6 src/include/config.hpp File Reference

Configures general project information.

This graph shows which files directly or indirectly include this file:



Namespaces

- namespace config

  Namespace used for general project information.

Variables

- constexpr auto config::LOG_CONFIG = "/home/simon/1_Coding/projectJsonToBat/build/config/easylogging.↩ conf"
- constexpr auto config::EXECUTABLE_NAME = "json2batch"
- constexpr auto config::MAJOR_VERSION = "1"
- constexpr auto config::MINOR_VERSION = "0"
- constexpr auto config::PATCH_VERSION = "0"
- constexpr auto config::DESCRIPTION = "A simple tool to convert json to batch."
- constexpr auto config::PROJECT_NAME = "JSON2Batch"
- constexpr auto config::AUTHORS = "@AUTHORS"
- constexpr auto config::HOMEPAGE_URL = "https://dhbwprojectsit23.github.io/JSON2Bat"

10.6.1 Detailed Description

Configures general project information.

Author

Simon Blum

Date

2024-04-18

Version

0.1.5

This file is used by CMake to configure general information which can be used throughout the project.

Note

This file is automatically configured by CMake. The original file can be found in conf/config.hpp.in @license GNU GPLv3

Copyright

See LICENSE file

Definition in file config.hpp.

10.7 config.hpp

Go to the documentation of this file.

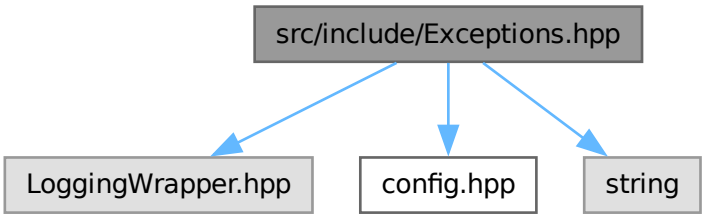
```
00001 /**
00002  * @file config.hpp
00003  * @author Simon Blum
00004  * @date 2024-04-18
00005  * @version 0.1.5
00006  * @brief Configures general project information
00007  * @details
00008  * This file is used by CMake to configure general information which can be
00009  * used throughout the project.
00010  *
00011  * @note This file is automatically configured by CMake.
00012  *       The original file can be found in conf/config.hpp.in
00013  * @license GNU GPLv3
00014  * @copyright See LICENSE file
00015  */
00016 // This file is autogenerated. Changes will be overwritten
00017
00018 #ifndef CONFIG_HPP
00019 #define CONFIG_HPP
00020
00021 /**
00022  * @namespace config
00023  * @brief Namespace used for general project information
00024  */
00025 namespace config {
00026 inline constexpr auto LOG_CONFIG =
      "/home/simon/1_Coding/projectJsonToBat/build/config/easylogging.conf";
00027 inline constexpr auto EXECUTABLE_NAME = "json2batch";
00028 inline constexpr auto MAJOR_VERSION = "1";
00029 inline constexpr auto MINOR_VERSION = "0";
00030 inline constexpr auto PATCH_VERSION = "0";
00031 inline constexpr auto DESCRIPTION = "A simple tool to convert json to batch.";
00032 inline constexpr auto PROJECT_NAME = "JSON2Batch";
00033 inline constexpr auto AUTHORS = "@AUTHORS";
00034 inline constexpr auto HOMEPAGE_URL = "https://dhbwprojectsit23.github.io/JSON2Bat";
00035 } // namespace config
00036
00037 #endif
```

10.8 src/include/Exceptions.hpp File Reference

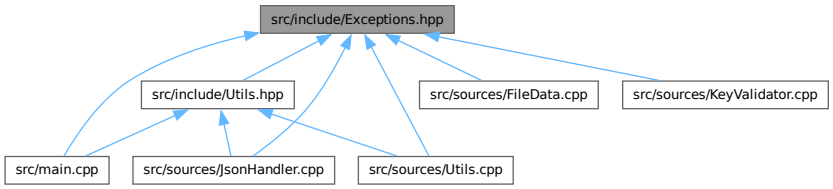
Contains all the custom exceptions used in the project.

```
#include "LoggingWrapper.hpp"
#include "config.hpp"
#include <string>
```

Include dependency graph for Exceptions.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class exceptions::CustomException

  Base class for all custom exceptions.
- class exceptions::ParsingException

  Exception for syntax errors within the json file.
- class exceptions::FileExistsException

  Exception for an already exisiting outputfile.
- class exceptions::InvalidValueException

  Exception for an ivalid (usually empty) value field.
- class exceptions::InvalidKeyException

  Exception for invalid keys.
- class exceptions::InvalidTypeException

  Exception for invalid types.
- class exceptions::MissingKeyException

  Exception for missing keys within entries.
- class exceptions::MissingTypeException

  Exception for missing types of entries.
- class exceptions::UnreachableCodeException

  Exception for when the application reaches code it shouldn't reach.
- class exceptions::FailedToOpenFileException

  Exception for when a file can't be opened.
- class exceptions::NoSuchDirException

  Exception for when a directory does not exist.
- class exceptions::ContainsBadCharacterException

  Exception for when a string contains bad characters.

Namespaces

- namespace exceptions

  Namespace used for customized exceptions.

10.8.1 Detailed Description

Contains all the custom exceptions used in the project.

Author

Simon Blum

Date

2024-04-26

Version

0.2.2

The error handling within this project is exception based. This allows us to throw custom exceptions throughout any part of the process and allow us to deal with them when necessary.

Copyright

See LICENSE file

Definition in file Exceptions.hpp.

10.9 Exceptions.hpp

Go to the documentation of this file.

```
00001 /**
00002  * @file Exceptions.hpp
00003  * @author Simon Blum
00004  * @date 2024-04-26
00005  * @version 0.2.2
00006  * @brief Contains all the custom exceptions used in the project.
00007  * @details
00008  * The error handling within this project is exception based.
00009  * This allows us to throw custom exceptions throughout any part
00010  * of the process and allow us to deal with them when necessary.
00011  *
00012  * @copyright See LICENSE file
00013  */
00014 #ifndef EXCEPTIONS_HPP
00015 #define EXCEPTIONS_HPP
00016
00017 #include "LoggingWrapper.hpp"
00018 #include "config.hpp"
00019 #include <string>
00020
00021 /**
00022  * @namespace exceptions
00023  * @brief Namespace used for customized exceptions
00024  */
00025 namespace exceptions {
00026 /**
00027  * @class CustomException
00028  * @brief Base class for all custom exceptions
00029  * @details
00030  * This class is the base class which is inherited by all custom exceptions.
00031  * It can be used to catch all exceptions that are thrown by us.
00032  *
00033  * @see std::exception
00034  */
00035 class CustomException : public std::exception {
00036 public:
00037     [[nodiscard]] const char *what() const noexcept override {
```

```
00038         return "Base Exception";
00039     }
00040 };
00041
00042 /**
00043  * @class ParsingException
00044  * @brief Exception for syntax errors within the json file.
00045  */
00046 class ParsingException : public CustomException {
00047 private:
00048     const std::string file;
00049     std::string message;
00050
00051 public:
00052     explicit ParsingException(const std::string &file) : file(file) {
00053         /**
00054          * @note I planned to use std::format, however it seems that the
00055          * required Compiler Version is not yet available in the stable Ubuntu
00056          * Repo!
00057          */
00058         std::stringstream ss;
00059         ss « "Error while trying to parse \"" « file « "\"!\n"
00060            « "There most likely is a syntax error within the \".json\" file.";
00061         this->message = ss.str();
00062         LOG_INFO « "ParsingException: " « message;
00063     }
00064
00065     [[nodiscard]] const char *what() const noexcept override {
00066         return message.c_str();
00067     }
00068 };
00069
00070 /**
00071  * @class FileExistsException
00072  * @brief Exception for an already exisiting outputfile
00073  */
00074 class FileExistsException : public CustomException {
00075 private:
00076     const std::string file;
00077     std::string message;
00078
00079 public:
00080     explicit FileExistsException(const std::string &file) : file(file) {
00081         /**
00082          * @note I planned to use std::format, however it seems that the
00083          * required Compiler Version is not yet available in the stable Ubuntu
00084          * Repo!
00085          */
00086         std::stringstream ss;
00087         ss « "The outputfile \"" « file « "\" already exists!";
00088         this->message = ss.str();
00089         LOG_INFO « "BatchExistsException: " « message;
00090     }
00091
00092     [[nodiscard]] const char *what() const noexcept override {
00093         return message.c_str();
00094     }
00095 };
00096
00097 /**
00098  * @class InvalidValueException
00099  * @brief Exception for an ivalid (usually empty) value field
00100  */
00101 class InvalidValueException : public CustomException {
00102 private:
00103     const std::string key;
00104     std::string message;
00105
00106 public:
00107     InvalidValueException(const std::string &key, const std::string &issue)
00108         : key(key) {
00109         /**
00110          * @note I planned to use std::format, however it seems that the
00111          * required Compiler Version is not yet available in the stable Ubuntu
00112          * Repo!
00113          */
00114         std::stringstream ss;
00115         ss « "Error at key \"" « key « "\"! " « issue;
00116         this->message = ss.str();
00117         LOG_INFO « "InvalidValueException: " « message;
00118     }
00119     [[nodiscard]] const char *what() const noexcept override {
00120         return message.c_str();
00121     }
00122 };
00123
00124 /**
```

```
00125  * @class InvalidKeyException
00126  * @brief Exception for invalid keys
00127  * @details
00128  * This exception is thrown when a key is found within the json file,
00129  * that is not part of the valid keys. It will also display the name
00130  * and the line of the invalid key.
00131  *
00132  * @see parsing::KeyValidator::validKeys
00133  * @see parsing::KeyValidator::validEntryKeys
00134  */
00135 class InvalidKeyException : public CustomException {
00136 private:
00137     std::string message = "Invalid key found!";
00138
00139 public:
00140     explicit InvalidKeyException(
00141         const std::vector<std::tuple<int, std::string» &keys) {
00142         LOG_INFO « "InvalidKeyException: " « message;
00143
00144         for (const auto &[line, key] : keys) {
00145             LOG_WARNING « "Invalid key found at line " « line « ": \"" « key
00146                         « "\"!";
00147         }
00148     }
00149     [[nodiscard]] const char *what() const noexcept override {
00150         return message.c_str();
00151     }
00152 };
00153
00154 /**
00155  * @class InvalidTypeException
00156  * @brief Exception for invalid types.
00157  * @details
00158  * This exception is thrown when the value of the "type" field within the
00159  * entries is invalid (not "EXE", "PATH", "ENV"). It also prints the type and
00160  * the line of the invalid type.
00161  */
00162 class InvalidTypeException : public CustomException {
00163 private:
00164     const std::string type;
00165     std::string message;
00166
00167 public:
00168     InvalidTypeException(const std::string &type, int line) : type(type) {
00169         /**
00170          * @note I planned to use std::format, however it seems that the
00171          * required Compiler Version is not yet available in the stable Ubuntu
00172          * Repo!
00173          */
00174         std::stringstream ss;
00175         ss « "Invalid type found at line " « line « ": \"" « type « "\"";
00176         this->message = ss.str();
00177         LOG_INFO « "InvalidTypeException: " « message;
00178     }
00179     [[nodiscard]] const char *what() const noexcept override {
00180         return message.c_str();
00181     }
00182 };
00183
00184 /**
00185  * @class MissingKeyException
00186  * @brief Exception for missing keys within entries.
00187  * @details
00188  * This exception is thrown when a key (such as "path" or "command") is missing
00189  * from an entry. It also prints the type and which key it is missing.
00190  */
00191 class MissingKeyException : public CustomException {
00192 private:
00193     std::string message;
00194     std::string type;
00195     std::string key;
00196
00197 public:
00198     MissingKeyException(const std::string &key, const std::string &type)
00199         : type(type), key(key) {
00200         /**
00201          * @note I planned to use std::format, however it seems that the
00202          * required Compiler Version is not yet available in the stable Ubuntu
00203          * Repo!
00204          */
00205         std::stringstream ss;
00206         ss « "Missing key \"" « key « "\" for type \"" « type « "\"!";
00207         this->message = ss.str();
00208         LOG_INFO « "MissingKeyException: " « message;
00209     }
00210     [[nodiscard]] const char *what() const noexcept override {
00211         return message.c_str();
```

```
00212     }
00213 };
00214
00215 /**
00216  * @class MissingTypeException
00217  * @brief Exception for missing types of entries
00218  * @details
00219  * This exception is thrown, when an entry is missing it's "type" key.
00220  */
00221 class MissingTypeException : public CustomException {
00222 private:
00223     std::string message = "Missing \"type\" key for at least one entry!";
00224
00225 public:
00226     MissingTypeException() {
00227         LOG_INFO « "MissingTypeException: " « message;
00228     }
00229     [[nodiscard]] const char *what() const noexcept override {
00230         return message.c_str();
00231     }
00232 };
00233
00234 /**
00235  * @class UnreachableCodeException
00236  * @brief Exception for when the application reaches code it shouldn't reach
00237  */
00238 class UnreachableCodeException : public CustomException {
00239 private:
00240     std::string message;
00241
00242 public:
00243     explicit UnreachableCodeException(const std::string &message)
00244         : message(message) {
00245         OUTPUT « "This exception happened due to a bug in the application!\n"
00246                « "Please report this bug! See " « config::EXECUTABLE_NAME
00247                « " -c for contact information.\n";
00248         LOG_INFO « "UnreachableCodeException: " « message;
00249     }
00250     [[nodiscard]] const char *what() const noexcept override {
00251         return message.c_str();
00252     }
00253 };
00254
00255 /**
00256  * @class FailedToOpenFileException
00257  * @brief Exception for when a file can't be opened
00258  */
00259 class FailedToOpenFileException : public CustomException {
00260 private:
00261     std::string message;
00262
00263 public:
00264     explicit FailedToOpenFileException(const std::string &file) {
00265         message = "Failed to open file: " + file;
00266         LOG_INFO « "FailedToOpenFileException: " « message;
00267     }
00268     [[nodiscard]] const char *what() const noexcept override {
00269         return message.c_str();
00270     }
00271 };
00272
00273 /**
00274  * @class NoSuchDirException
00275  * @brief Exception for when a directory does not exist
00276  */
00277 class NoSuchDirException : public CustomException {
00278 private:
00279     std::string message;
00280
00281 public:
00282     explicit NoSuchDirException(const std::string &dir) {
00283         message = "No such directory: " + dir;
00284         LOG_INFO « "NoSuchDirException: " « message;
00285     }
00286     [[nodiscard]] const char *what() const noexcept override {
00287         return message.c_str();
00288     }
00289 };
00290
00291 /**
00292  * @class ContainsBadCharacterException
00293  * @brief Exception for when a string contains bad characters
00294  */
00295 class ContainsBadCharacterException : public CustomException {
00296 private:
00297     std::string message;
00298
```

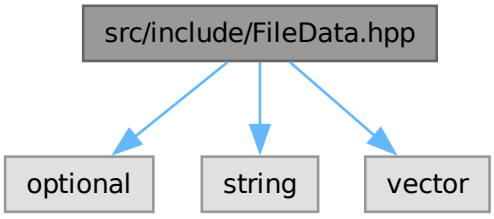
```
00299 public:
00300     explicit ContainsBadCharacterException(const std::string &value) {
00301         message = "The value \"" + value + "\" contains bad characters!";
00302         LOG_INFO « "ContainsBadCharacterException: " « message;
00303     }
00304     [[nodiscard]] const char *what() const noexcept override {
00305         return message.c_str();
00306     }
00307 };
00308
00309 } // namespace exceptions
00310
00311 #endif
```

10.10 src/include/FileData.hpp File Reference

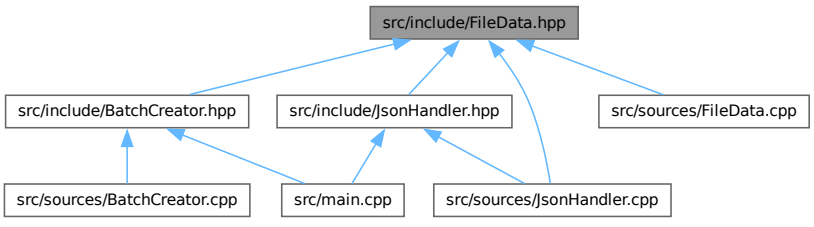
This file contains the FileData class.

```
#include <optional>
#include <string>
#include <vector>
```

Include dependency graph for FileData.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class parsing::FileData

  This class contains all data from the json file.

Namespaces

- namespace parsing

  The namespace containing everything relevant to parsing.

10.10.1 Detailed Description

This file contains the FileData class.

Author

Sonia Sinacci, Elena Schwartzbach

Date

16.04.2024

Version

0.1.5

See also

parsing::FileData

src/sources/FileData.cpp

Copyright

See LICENSE file

Definition in file FileData.hpp.

10.11 FileData.hpp

Go to the documentation of this file.

```
00001 /**
00002  * @file FileData.hpp
00003  * @author Sonia Sinacci, Elena Schwartzbach
00004  * @date 16.04.2024
00005  * @version 0.1.5
00006  * @brief This file contains the FileData class
00007  *
00008  * @see parsing::FileData
00009  *
00010  * @see src/sources/FileData.cpp
00011  *
00012  * @copyright See LICENSE file
00013  */
00014
00015 #ifndef FILEDATA_HPP
00016 #define FILEDATA_HPP
00017
00018 #include <optional>
00019 #include <string>
00020 #include <vector>
00021
00022 namespace parsing {
```

```
00023 /**
00024  * @class FileData
00025  * @brief This class contains all data from the json file.
00026  * @details
00027  * The data from the json file is parsed by the JsonHandler and then assigned
00028  * to the attributes of an instance of this class.
00029  * This class also handles a part of the error handling.
00030  * - {ReqFunc14}
00031  */
00032 class FileData {
00033 public:
00034     /**
00035      * @brief Setter for this->outputfile
00036      * @details
00037      * Checks that neither the given string is empty, nor that the outputfile
00038      * is already set and then assigns the newOutputfile to the instance.
00039      *
00040      * @param newOutputfile The outputfile to be set
00041      *
00042      * @throws exceptions::InvalidValueException
00043      */
00044     void setOutputFile(std::string &newOutputfile);
00045
00046     /**
00047      * @brief Setter for this->hideshell
00048      * @param newHideShell The hideshell value to be set
00049      */
00050     void setHideShell(bool newHideShell) {
00051         this->hideShell = newHideShell;
00052     }
00053
00054     /**
00055      * @brief Setter for this->application
00056      * @details
00057      * Set's the application attribute. Return's if the given string is
00058      * empty.
00059      *
00060      * @param newApplication THe application to be set
00061      */
00062     void setApplication(const std::string &newApplication);
00063
00064     /**
00065      * @brief Adds a given command to this->commands
00066      * @details
00067      * Makes sure, that the given command value is not empty and then add's
00068      * it to the commands attribute.
00069      *
00070      * @param command The command to be added
00071      *
00072      * @throws exceptions::InvalidValueException
00073      */
00074     void addCommand(const std::string &command);
00075
00076     /**
00077      * @brief Adds a given tuple to this->environmentVariables
00078      * @details
00079      * Makes sure that neither the key nor the value is empty and then adds
00080      * a tuple with both values to the environmentVariables attribute
00081      *
00082      * @param name The name of the env variable
00083      * @param value The value of the env variable
00084      *
00085      * @throws exceptions::InvalidValueException
00086      */
00087     void addEnvironmentVariable(const std::string &name,
00088                                 const std::string &value);
00089
00090     /**
00091      * @brief Add's a given value to this->pathValues
00092      * @details
00093      * Makes sure that the given value is not empty and then assigns it to
00094      * the given pathValues attribute
00095      *
00096      * @param pathValue The value to be added
00097      *
00098      * @throws exceptions::InvalidValueException
00099      */
00100     void addPathValue(const std::string &pathValue);
00101
00102     /**
00103      * @brief Getter for this->outputfile
00104      * @return The assigned outputfile
00105      */
00106     [[nodiscard]] const std::string &getOutputFile() const {
00107         return outputfile;
00108     }
00109
```

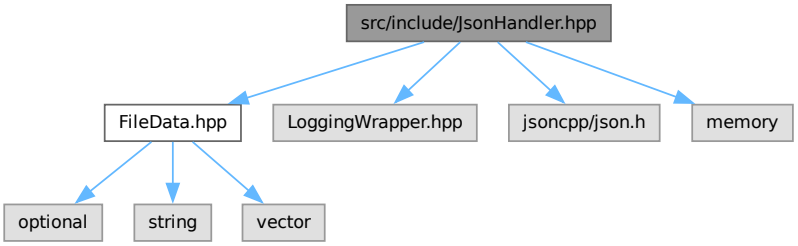
```
00110     /**
00111      * @brief Getter for this->hideShell
00112      * @return The assigned value for hideshell
00113      */
00114     [[nodiscard]] bool getHideShell() const {
00115         return hideShell;
00116     }
00117
00118     /**
00119      * @brief Getter for this->application
00120      * @return The assigned application
00121      */
00122     [[nodiscard]] const std::optional<std::string> &getApplication() const {
00123         return application;
00124     }
00125
00126     /**
00127      * @brief Getter for this->commands
00128      * @return The vector of assigned commands
00129      */
00130     [[nodiscard]] const std::vector<std::string> &getCommands() const {
00131         return commands;
00132     }
00133
00134     /**
00135      * @brief Getter for this->environmentVariables
00136      * @return The vector of assigned env variables
00137      */
00138     [[nodiscard]] const std::vector<std::tuple<std::string, std::string>> &
00139     getEnvironmentVariables() const {
00140         return environmentVariables;
00141     }
00142
00143     /**
00144      * @brief Getter for this->pathValues
00145      * @return The vector of assigned pathValues
00146      */
00147     [[nodiscard]] const std::vector<std::string> &getPathValues() const {
00148         return pathValues;
00149     }
00150
00151 private:
00152     std::string outputfile;
00153     bool hideShell;
00154     std::optional<std::string> application;
00155     // {ReqFunc15}
00156     std::vector<std::string> commands;
00157     // Tuple<key, value> - {ReqFunc15}
00158     std::vector<std::tuple<std::string, std::string>> environmentVariables;
00159     // {ReqFunc15}
00160     std::vector<std::string> pathValues;
00161 };
00162 } // namespace parsing
00163
00164 #endif // FILEDATA_HPP
```

10.12 src/include/JsonHandler.hpp File Reference

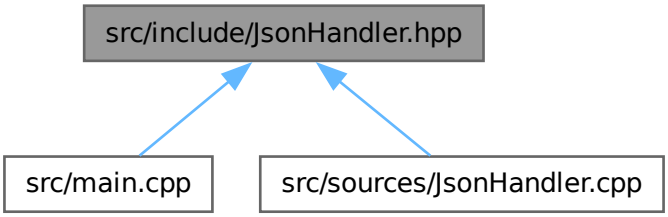
This file contains the JsonHandler class.

```
#include "FileData.hpp"
#include "LoggingWrapper.hpp"
#include <jsoncpp/json.h>
#include <memory>
```

Include dependency graph for JsonHandler.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class parsing::JsonHandler

  This file reads all data from the json file.

Namespaces

- namespace parsing

  The namespace containing everything relevant to parsing.

10.12.1 Detailed Description

This file contains the JsonHandler class.

Author

Sonia Sinacci, Elena Schwartzbach

Date

23.04.2024

Version

0.1.5

See also

parsing::JsonHandler

src/sources/JsonHandler.cpp

Copyright

See LICENSE file

Definition in file JsonHandler.hpp.

10.13 JsonHandler.hpp

Go to the documentation of this file.

```
00001 /**
00002  * @file JsonHandler.hpp
00003  * @author Sonia Sinacci, Elena Schwartzbach
00004  * @date 23.04.2024
00005  * @version 0.1.5
00006  * @brief This file contains the JsonHandler class
00007  *
00008  * @see parsing::JsonHandler
00009  *
00010  * @see src/sources/JsonHandler.cpp
00011  *
00012  * @copyright See LICENSE file
00013  */
00014
00015 #ifndef JSONHANDLER_HPP
00016 #define JSONHANDLER_HPP
00017
00018 #include "FileData.hpp"
00019 #include "LoggingWrapper.hpp"
00020 #include <jsoncpp/json.h>
00021
00022 #include <memory>
00023
00024 /**
00025  * @namespace parsing
00026  * @brief The namespace containing everything relevant to parsing
00027  * @details
00028  * This namespace contains all relevant classes to parsing the json file
00029  * and creating the batch output.
00030  *
00031  * @see JsonHandler
00032  * @see FileData
00033  * @see KeyValidator
00034  * @see BatchCreator
00035  */
00036 namespace parsing {
00037
00038 /**
00039  * @class JsonHandler
00040  * @brief This file reads all data from the json file.
00041  * @details
00042  * This file uses the jsoncpp library to parse all data from a json
00043  * file, validate it to some degree.
00044  *
00045  * @see https://github.com/open-source-parsers/jsoncpp
00046  */
00047 class JsonHandler {
```

```
00048 public:
00049     /**
00050      * @brief Constructor without arguments
00051      * @details
00052      * This constructor can be used to initialise an instance in an outer scope
00053      * and then assign it values from an inner scope.
00054      */
00055     JsonHandler() {
00056         LOG_INFO « "Initialising empty JsonHandler";
00057     }
00058     /**
00059      * @brief The constructor
00060      * @details
00061      * This constructor calls this->parseFile() when called.
00062      *
00063      * @param filename Name of the json file
00064      */
00065     explicit JsonHandler(const std::string &filename);
00066     /**
00067      * @brief Retrieve the data from the json file
00068      * @details
00069      * This method calls this->createFileData() needed to retrieve the values from
00070      * the Json::Value this->root and then returns a shared pointer to the
00071      * created FileData object.
00072      *
00073      * @return Pointer to the FileData Object with the parsed data from json
00074      */
00075     std::shared_ptr<FileData> getFileData();
00076
00077 private:
00078     /**
00079      * @brief Parses the given json file
00080      * @details
00081      * This method first creates a new Json::Value instance and then tries to
00082      * parse the given json file.
00083      * It then validates the keys of the instance using the KeyValidator class.
00084      *
00085      * @param filename The name of the file wich should be parsed
00086      * @return A shared pointer to the Json::Value instance
00087      *
00088      * @see KeyValidator::validateKeys()
00089      *
00090      * @throw exceptions::ParsingException
00091      * @throw exceptions::InvalidKeyException
00092      */
00093     [[nodiscard]] static std::shared_ptr<Json::Value>
00094     parseFile(const std::string &filename);
00095     /**
00096      * @brief Assigns the outputfile to this->data
00097      * @details
00098      * Retrieves the outputfile from Json::Value this->root and makes sure, that
00099      * the file doesn't already exist.
00100      * - {ReqFunc8}
00101      *
00102      * @throw exceptions::FileExistsException
00103      */
00104     void assignOutputFile() const;
00105     /**
00106      * @brief Assigns the hideshell value to this->data
00107      * @details
00108      * Retrieves the value of the hideshell key from Json::Value this->root and
00109      * defaults to negative.
00110      * - {ReqFunc9}
00111      */
00112     void assignHideShell() const;
00113     /**
00114      * @brief Assigns application to this->data
00115      * @details
00116      * Retrieves the value of the application key from Json::Value this->root and
00117      * defaults to an empty string.
00118      * - {ReqFunc16}
00119      */
00120     void assignApplication() const;
00121     /**
00122      * @brief Assigns entries to this->data
00123      * @details
00124      * Goes through each of the entries from Json::Value this->root and
00125      * calls the relevant method depending on it's type.
00126      * All "type" keys should be valid by this point.
00127      * - {ReqFunc10}
00128      *
00129      * @param entry Json::Value containing an array with entries
00130      *
00131      * @throw exceptions::UnreachableCodeException
00132      */
00133     void assignEntries() const;
00134     /**
```

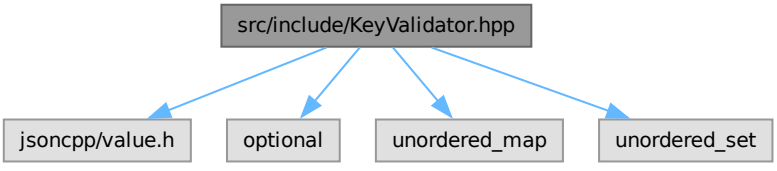
```
00135      * @brief Assigns an command to this->data
00136      * @details
00137      * - {ReqFunc12}
00138      * @param entry The entry with the command
00139      */
00140     void assignCommand(const Json::Value &entry) const;
00141     /**
00142      * @brief Assigns an environmentVariable to this->data
00143      * @details
00144      * - {ReqFunc11}
00145      * @param entry The entry with the environmentVariable
00146      */
00147     void assignEnvironmentVariable(const Json::Value &entry) const;
00148     /**
00149      * @brief Assigns a path value to this->data
00150      * @details
00151      * - {ReqFunc13}
00152      * @param entry The entry with the path value
00153      */
00154     void assignPathValue(const Json::Value &entry) const;
00155     /**
00156      * @brief Creates the FileData instance
00157      * @details
00158      * Instantiates the FileData instance, calls all nessecary functions and
00159      * returns a shared pointer to it.
00160      *
00161      * @return Pointer to the created instance of FileData
00162      */
00163     std::shared_ptr<FileData> createFileData();
00164
00165     /**
00166     * @brief Check if a string contains a bad character
00167     * @details
00168     * This method checks if a given string contains a bad character.
00169     * Bad characters are declared in a set within the function. This is done
00170     * to ensure, that no characters such as line breaks, break the later
00171     * generated batch file.
00172     *
00173     * @param str The string to be checked
00174     *
00175     * @bool If the string contains a bad char or not
00176     */
00177     [[nodiscard]] static bool containsBadCharacter(const std::string_view &str);
00178     std::shared_ptr<Json::Value> root;
00179     std::shared_ptr<FileData> data;
00180 };
00181 } // namespace parsing
00182
00183 #endif // JSONHANDLER_HPP
```

10.14 src/include/KeyValidator.hpp File Reference

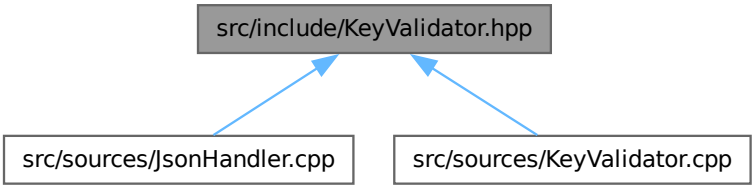
This file contains the KeyValidator class.

```
#include "jsoncpp/value.h"
#include <optional>
#include <unordered_map>
#include <unordered_set>
```

Include dependency graph for KeyValidator.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class parsing::KeyValidator

  Validates keys of a Json::Value object.

Namespaces

- namespace parsing

  The namespace containing everything relevant to parsing.

10.14.1 Detailed Description

This file contains the KeyValidator class.

Author

Simon Blum

Date

2024-04-26

Version

0.2.2

See also

parsing::KeyValidator

src/sources/KeyValidator.cpp

Copyright

See LICENSE file

Definition in file KeyValidator.hpp.

10.15 KeyValidator.hpp

Go to the documentation of this file.

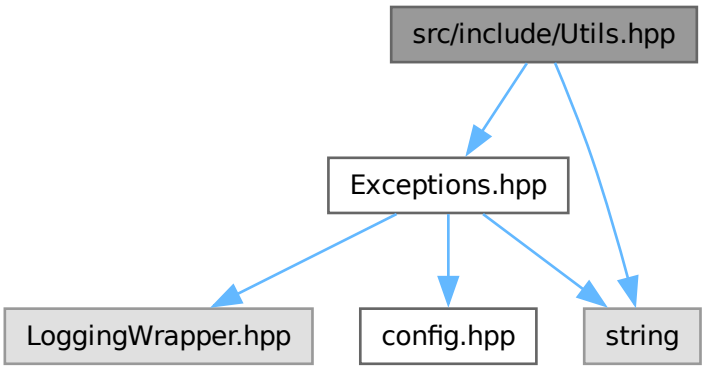
```
00001 /**
00002  * @file KeyValidator.hpp
00003  * @author Simon Blum
00004  * @date 2024-04-26
00005  * @version 0.2.2
00006  * @brief This file contains the KeyValidator class
00007  *
00008  * @see parsing::KeyValidator
00009  *
00010  * @see src/sources/KeyValidator.cpp
00011  *
00012  * @copyright See LICENSE file
00013  */
00014 #ifndef KEYVALIDATOR_HPP
00015 #define KEYVALIDATOR_HPP
00016
00017 #include "jsoncpp/value.h"
00018 #include <optional>
00019 #include <unordered_map>
00020 #include <unordered_set>
00021 namespace parsing {
00022 /**
00023  * @class KeyValidator
00024  * @brief Validates keys of a Json::Value object.
00025  * @details
00026  * This class is singleton. That way when multiple files are parsed
00027  * with the application, the maps for valid keys and the set for the type
00028  * entries field only have to be allocated once when parsing multiple files.
00029  * - {ReqFunc17}
00030  */
00031 class KeyValidator {
00032 public:
00033     /**
00034      * @brief Get the instance of this class
00035      *
00036      * @return Reference to the instance of this class
00037      */
00038     static KeyValidator &getInstance();
00039
00040     /**
00041      * @brief Validate keys off a Json::Value object
00042      * @details
00043      * This method goes through the MemberNames of a Json::Value object and
00044      * validates, that they are part of the validKey attribute.
00045      * It calls the nessecary methods to validate the keys within the
00046      * entries array.
00047      *
00048      * @param root The Json::Value object to be validated.
00049      * @param filename The filename from which 'root' is from.
00050      *
00051      * @return A vector with tuples, containing the line and name of invalid
00052      * types.
00053      */
00054     std::vector<std::tuple<int, std::string>>
00055     validateKeys(const Json::Value &root, const std::string &filename);
00056
00057 private:
00058     /**
00059      * @brief Retrieve the wrong keys from a Json::Value object
00060      * @details
00061      * This method goes through each key of the Json::Value object and makes
00062      * sure it's valid.
00063      *
00064      * @param root The Json::Value object to be validated.
00065      * @param filename The filename from which 'root' is from.
00066      *
00067      * @return A vector with tuples, containing the line and name of invalid
00068      * types.
00069      */
00070     std::vector<std::tuple<int, std::string>>
00071     getWrongKeys(const Json::Value &root, const std::string &filename) const;
00072
00073     /**
00074      * @brief Validates types from the entries array.
00075      * @details
00076      * This method goes makes sure, that the type of the given entry is valid
00077      * and that it contains it's necessary keys.
00078      * It will throw an exception if the type is missing, if the type is invalid
00079      * or if the type is missing a key.
00080      *
00081      * @note Unnecessary keys within a type entry, don't cause an exception and
00082      * are ignored.
```

```
00083      *
00084      * @param filename The filename from which 'entry' is from
00085      * @param entry The entry to be validated
00086      * @param entryKeys The keys of the entry
00087      *
00088      * @throw exceptions::MissingTypeException
00089      * @throw exceptions::InvalidTypeException
00090      * @throw exceptions::MissingKeyException
00091      */
00092     void validateTypes(const std::string &filename, const Json::Value &entry,
00093                        const std::unordered_set<std::string> &entryKeys);
00094
00095     /**
00096      * @brief Validates that keys within the entries array are valid.
00097      * @details
00098      * This mehthod goes through each of the entries, and validates, that
00099      * the keys are part of the validEntryKeys attribute.
00100      *
00101      *
00102      * @param filename The filename from which the entries are from
00103      * @param entryKeys The keys of the entries
00104      *
00105      * @return A vector with tuples, containing the line and name of invalid
00106      * entrie keys
00107      */
00108     std::vector<std::tuple<int, std::string>
00109     validateEntries(const std::string &filename,
00110                     const std::unordered_set<std::string> &entryKeys) const;
00111
00112     /**
00113      * @brief Get the line of an unknown key
00114      * @details
00115      * This method goes through each line of the given file and checks if the
00116      * line contains the given key. Returns std::nullopt if the file can't be
00117      * opened or the key was not found.
00118      *
00119      * @param filename The filename which should contain the key
00120      * @param wrongKey The key to be searched for
00121      *
00122      * @return The line of the key, if it was found
00123      */
00124     static std::optional<int> getUnknownKeyLine(const std::string &filename,
00125             const std::string &wrongKey);
00126
00127     /**
00128      * @note Changed from vector to unordered_set in 0.2.1 - as this shoud improve
00129      * lookup performance from O(n) to O(1)
00130      */
00131     std::unordered_set<std::string> validKeys = {"outputfile", "hideshell",
00132         "entries", "application"
00133     };
00134     /**
00135      * @note Changed from vector to unordered_set in 0.2.1 - as this shoud improve
00136      * lookup performance from O(n) to O(1)
00137      */
00138     std::unordered_set<std::string> validEntryKeys = {"type", "key", "value",
00139         "path", "command"
00140     };
00141
00142     /**
00143      * @note Changed from if/else clause within function to map in 0.2.1
00144      */
00145     std::unordered_map<std::string_view, std::vector<std::string>> typeToKeys = {
00146         {"EXE", {"command"}}, {"PATH", {"path"}}, {"ENV", {"key", "value"}}
00147     };
00148 };
00149 } // namespace parsing
00150
00151 #endif
```

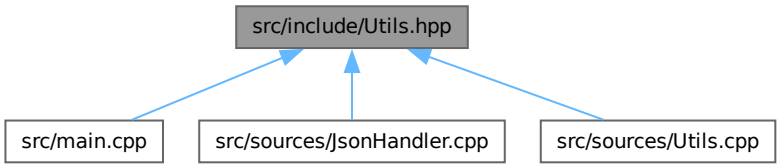
10.16 src/include/Utils.hpp File Reference

```
#include "Exceptions.hpp"
#include <string>
```

Include dependency graph for Utils.hpp:



This graph shows which files directly or indirectly include this file:



Classes

- class utilities::Utils

  Responsible for utility function.

Namespaces

- namespace utilities

  Includes all utilities.

10.17 Utils.hpp

Go to the documentation of this file.

```
00001 /**
00002  * @file Utilities.hpp
00003  * @author Simon Blum
00004  * @date 2024-04-18
00005  * @version 0.1.5
```

```
00006  * @brief Responsible for miscellaneous utility
00007  * @details
00008  * This file includes the Utils class, which includes miscellaneous utility
00009  * functions which can be used throughout the project.
00010  *
00011  * @see utilities
00012  * @see Utils
00013  *
00014  * @see src/sources/Utils.cpp
00015  *
00016  * @copyright See LICENSE file
00017  */
00018 #ifndef UTILITIES_HPP
00019 #define UTILITIES_HPP
00020
00021 #include "Exceptions.hpp"
00022 #include <string>
00023
00024 /**
00025  * @namespace utilities
00026  * @brief Includes all utilities
00027  * @details
00028  * This namespace includes the Utils class with utility functions which can be
00029  * used throughout the project.
00030  *
00031  * @see Utils
00032  */
00033 namespace utilities {
00034
00035 /**
00036  * @class Utils
00037  * @brief Responsible for utility function.
00038  * @details
00039  * This class is responsible for handling miscellaneous utility functions
00040  * which be used throughout the whole project.
00041  */
00042 class Utils {
00043 public:
00044     /**
00045      * @brief Set up easylogging
00046      * @details
00047      * This function sets up the easylogging library based on the given
00048      * config file.
00049      * @param configFile The config file which is used
00050      */
00051     static void setupEasyLogging(const std::string &configFile);
00052
00053     /**
00054      * @brief Handle an exception within the main parsing loop
00055      * @details
00056      * This function handles an exception within the main parsing loop. It
00057      * displays the error message and asks the user if they want to continue.
00058      * - Moved to Utils in 0.2.2 to improve readibility in main.cpp
00059      *
00060      * @param e The exception to be handled
00061      * @param file The file which caused the exception
00062      * @param files The list of files
00063      *
00064      * @return Returns true if the user wants to continue and false otherwise
00065      */
00066     static bool
00067     handleParseException(const std::exception &e,
00068                          const std::vector<std::string>::iterator &file,
00069                          const std::vector<std::string> &files);
00070
00071     /**
00072      * @brief Asks if the user wants to continue
00073      * @details
00074      * Asks the user if they want to continue and prompts them for a response.
00075      * @param prompt (Optional) A custom prompt to be used.
00076      * @return Returns true if the user wants to continue and false otherwise.
00077      */
00078     static bool
00079     askToContinue(const std::string &prompt = "Do you want to continue? (Y/N)\n");
00080
00081     /**
00082      * @brief Checks if the easylogging-config file exists
00083      * @param configFile The config file to be checked
00084      */
00085     static void checkConfigFile(const std::string &configFile);
00086
00087     /**
00088      * @brief Checks if the given directory exists and is valid
00089      *
00090      * @details
00091      * This function checks if the given directory exists and is valid. If the
00092      * directory does not end with a '/' or a '\', it will be added.
```

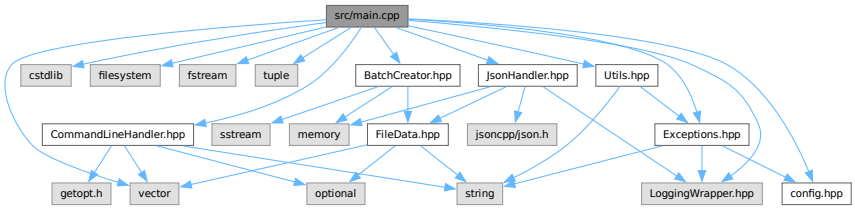
```
00093      *
00094      * @param directory The directory to be checked
00095      *
00096      * @return The checked directory
00097      */
00098     static const std::string &checkDirectory(std::string &directory);
00099
00100     /**
00101     * @brief Escape any unwanted escape sequences in a string.
00102     * @details
00103     * This function takes a string and escapes already existing escape
00104     * sequences. E.g. "\n" would become "\\n".
00105     *
00106     * @param str The string to be escaped
00107     *
00108     * @return The processed string
00109     */
00110     static std::string escapeString(const std::string &str);
00111 };
00112 } // namespace utilities
00113
00114 #endif // UTILITIES_HPP
```

10.18 src/main.cpp File Reference

Contains the main function.

```
#include <LoggingWrapper.hpp>
#include <cstdlib>
#include <filesystem>
#include <fstream>
#include <tuple>
#include <vector>
#include "BatchCreator.hpp"
#include "CommandLineHandler.hpp"
#include "Exceptions.hpp"
#include "JsonHandler.hpp"
#include "Utils.hpp"
#include "config.hpp"
```

Include dependency graph for main.cpp:



Functions

- std::tuple< std::vector< std::string >, std::string > parseAndValidateArgs (int argc, char ∗argv[ ])

  Validates and parses arguments.
- std::vector< std::string > validateFiles (const std::vector< std::string > &files)

  Checks if the files are valid.
- void parseFile (const std::string &file, const std::string &outputDirectory)

  Parses the given file and writes the output to the output directory.
- int main (int argc, char ∗argv[ ])

  Main function of the program.

10.18.1 Detailed Description

Contains the main function.

Author

Elena Schwarzbach, Max Rodler, Simon Blum, Sonia Sinaci

Date

2024-04-26

Version

0.2.2

The main function is responsible for connection all parts of the programm. It calls all relevant classes and finishes when everything is done.

- {ReqOptFunc3} - Documentation is done using doxygen syntax
- {ReqOptFunc3} - All Classes, methods, funciton, namespaces and file are documented
- {ReqNonFunc5} - Source files are found under src/sources, header under src/include
- {ReqNonFunc6} - All header files can be included withou paths
- {ReqNonFunc7} - Non source files are included
- {ReqNonFunc8} - All header files include a "ifndef/define/endif" block
- {ReqOptFunc5} - Every file has a top comment including the authors
- {ReqOptFunc6} - Logging is done using easylogging++ library
  - A self written wrapper is used, to allow for parallel output to the stdout and the logfile. Though we don't consider this wrapper part of the project itself and as such is placed within the directorys for external libraries
- Formatting is done via astyle
- !{ReqOptFunc7} - No unit tests are included

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Definition in file main.cpp.

10.18.2 Function Documentation

10.18.2.1 main()

```
int main (
            int argc,
            char * argv[] )
```

Main function of the program.

The main function is responsible for connection all parts of the programm. It calls all relevant classes and finishes when everything is done.

Parameters

argc	The number of arguments given
argv	The command line arguments given

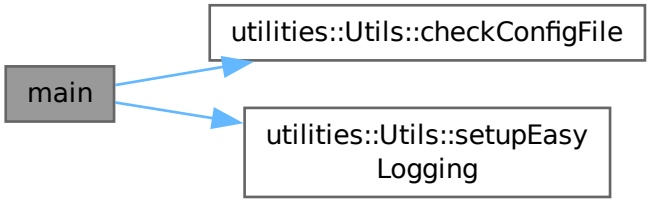
Returns

Returns 0 on success, 1 on failure

Definition at line 85 of file main.cpp.

References utilities::Utils::checkConfigFile(), config::LOG_CONFIG, and utilities::Utils::setupEasyLogging().

Here is the call graph for this function:



10.18.2.2 parseAndValidateArgs()

```
std::tuple< std::vector< std::string >, std::string > parseAndValidateArgs (
            int argc,
            char * argv[] )
```

Validates and parses arguments.

Parameters

argc	Number of arguments provided
argv	The arguments provided

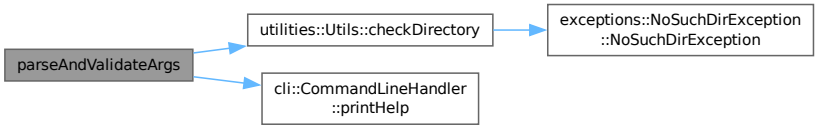
Returns

A tuple containing the files to be parsed and the output directory

Definition at line 131 of file main.cpp.

References utilities::Utils::checkDirectory(), and cli::CommandLineHandler::printHelp().

Here is the call graph for this function:



10.18.2.3 parseFile()

```
void parseFile (
            const std::string & file,
            const std::string & outputDirectory )
```

Parses the given file and writes the output to the output directory.

Creates the Batch file from the given file

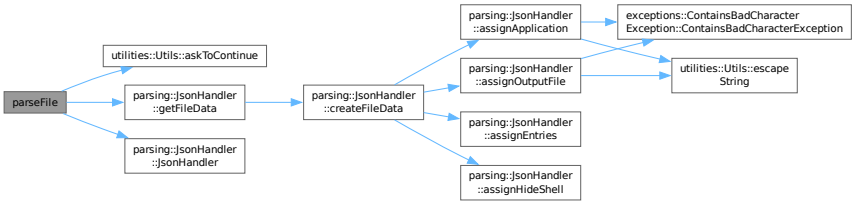
Parameters

file	The file to be parsed

Definition at line 199 of file main.cpp.

References utilities::Utils::askToContinue(), parsing::JsonHandler::getFileData(), and parsing::JsonHandler::JsonHandler().

Here is the call graph for this function:



10.18.2.4 validateFiles()

```
std::vector< std::string > validateFiles (
            const std::vector< std::string > & files )
```

Checks if the files are valid.

Makes sures, that provided files exists and checks their file ending

Parameters

files	The files to be checked • {ReqFunc5}

Returns

A vector containing the valid files

Definition at line 158 of file main.cpp.

10.19 main.cpp

Go to the documentation of this file.

```
00001 /**
00002  * @file main.cpp
00003  * @author Elena Schwarzbach, Max Rodler, Simon Blum, Sonia Sinaci
00004  * @date 2024-04-26
00005  * @version 0.2.2
00006  * @brief Contains the main function.
00007  * @details
00008  * The main function is responsible for connection all parts of the programm.
00009  * It calls all relevant classes and finishes when everything is done.
00010  * - {ReqOptFunc3} - Documentation is done using doxygen syntax
00011  * - {ReqOptFunc3} - All Classes, methods, funciton, namespaces and file are
00012  * documented
00013  * - {ReqNonFunc5} - Source files are found under src/sources, header under
00014  * src/include
00015  * - {ReqNonFunc6} - All header files can be included withou paths
00016  * - {ReqNonFunc7} - Non source files are included
00017  * - {ReqNonFunc8} - All header files include a "ifndef/define/endif" block
00018  * - {ReqOptFunc5} - Every file has a top comment including the authors
00019  * - {ReqOptFunc6} - Logging is done using easylogging++ library
00020  *                 - A self written wrapper is used, to allow for parallel
00021  * output to the stdout and the logfile. Though we don't consider this wrapper
00022  * part of the project itself and as such is placed within the directorys for
00023  * external libraries
00024  * - Formatting is done via astyle
00025  * - !{ReqOptFunc7} - No unit tests are included
00026  *
00027  * @copyright See LICENSE file
00028  */
00029 #include <LoggingWrapper.hpp>
00030 #include <cstdlib>
00031 #include <filesystem>
00032 #include <fstream>
00033 #include <tuple>
00034 #include <vector>
00035
00036 #include "BatchCreator.hpp"
00037 #include "CommandLineHandler.hpp"
00038 #include "Exceptions.hpp"
00039 #include "JsonHandler.hpp"
00040 #include "Utils.hpp"
00041 #include "config.hpp"
00042
00043 /**
00044  * @brief Validates and parses arguments
00045  *
00046  * @param argc Number of arguments provided
00047  * @param argv The arguments provided
00048  * @return A tuple containing the files to be parsed and the output directory
00049  */
00050 std::tuple<std::vector<std::string>, std::string>
00051 parseAndValidateArgs(int argc, char *argv[]);
00052
00053 /**
00054  * @brief Checks if the files are valid
00055  * @details
00056  * Makes sures, that provided files exists and checks their file ending
00057  * @param files The files to be checked
00058  * - {ReqFunc5}
```

```
00059  *
00060  * @return A vector containing the valid files
00061  */
00062 std::vector<std::string> validateFiles(const std::vector<std::string> &files);
00063
00064 /**
00065  * @brief Parses the given file and writes the output to the output directory
00066  * @details
00067  * Creates the Batch file from the given file
00068  * @param file The file to be parsed
00069  */
00070 void parseFile(const std::string &file, const std::string &outputDirectory);
00071
00072 /**
00073  * @brief Main function of the program
00074  * @details
00075  * The main function is responsible for connection all parts of the
00076  * programm. It calls all relevant classes and finishes when everything is
00077  * done.
00078  *
00079  * @param argc The number of arguments given
00080  * @param argv The command line arguments given
00081  *
00082  * @return Returns 0 on success, 1 on failure
00083  *
00084  */
00085 int main(int argc, char *argv[]) {
00086     // Setup logging
00087     utilities::Utils::checkConfigFile(config::LOG_CONFIG);
00088     utilities::Utils::setupEasyLogging(config::LOG_CONFIG);
00089     // Parse and validate arguments
00090     auto [files, outDir] = parseAndValidateArgs(argc, argv);
00091     OUTPUT « cli::BOLD « "Parsing the following files:\n" « cli::RESET;
00092
00093     for (const auto &file : files) {
00094         OUTPUT « "\t - " « file « "\n";
00095     }
00096
00097     files = validateFiles(files);
00098
00099     // Loop for {ReqFunc7}
00100     for (auto file = files.begin(); file != files.end(); ++file) {
00101         OUTPUT « cli::ITALIC « "\nParsing file: " « *file « "...\n"
00102                « cli::RESET;
00103
00104         try {
00105             parseFile(*file, outDir);
00106             // Only catch custom exceptions, other exceptions are fatal
00107         } catch (const exceptions::CustomException &e) {
00108             LOG_INFO « "Caught custom exception: " « typeid(e).name();
00109             if (utilities::Utils::handleParseException(e, file, files)) {
00110                 continue;
00111             }
00112
00113             exit(1);
00114         } catch (const Json::Exception &e) {
00115             LOG_INFO « "Caught Json exception: " « typeid(e).name();
00116             if (utilities::Utils::handleParseException(e, file, files)) {
00117                 continue;
00118             }
00119
00120             exit(1);
00121         }
00122
00123     }
00124     OUTPUT « "Done parsing files!\n";
00125
00126     LOG_INFO « "Exiting...";
00127     return 0;
00128 }
00129
00130 std::tuple<std::vector<std::string>, std::string>
00131 parseAndValidateArgs(int argc, char *argv[]) {
00132     if (argc < 2) {
00133         LOG_ERROR « "No options given!";
00134         cli::CommandLineHandler::printHelp();
00135     }
00136
00137     auto [outOption, files] = cli::CommandLineHandler::parseArguments(argc, argv);
00138     // Set the output directory if given
00139     std::string outDir = outOption.value_or("");
00140
00141     if (!outDir.empty()) {
00142         try {
00143             outDir = utilities::Utils::checkDirectory(outDir);
00144         } catch (const exceptions::CustomException &e) {
00145             LOG_ERROR « e.what();
```

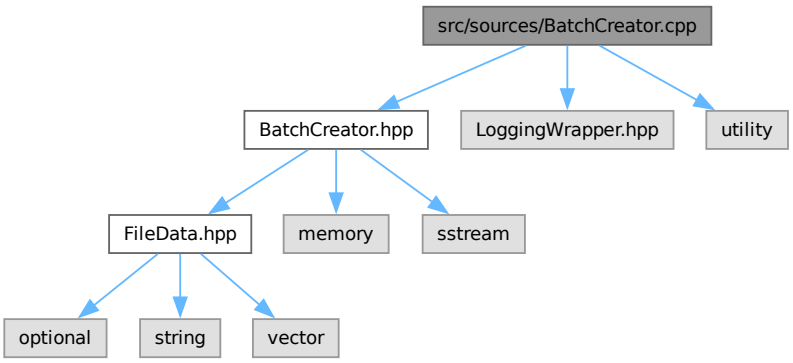
```
00146             exit(1);
00147         }
00148     }
00149
00150     if (files.empty()) {
00151         LOG_ERROR « "No files were given as arguments!";
00152         exit(1);
00153     }
00154
00155     return {files, outDir};
00156 }
00157
00158 std::vector<std::string> validateFiles(const std::vector<std::string> &files) {
00159     std::vector<std::string> validFiles;
00160     // Reserve space, to avaid reallocating with each valid file
00161     validFiles.reserve(files.size());
00162
00163     for (const std::filesystem::path file : files) {
00164         // Check that the file exists
00165         // {ReqFunc5}
00166         if (!std::filesystem::is_regular_file(file)) {
00167             LOG_ERROR « "The file \"" « file « "\" does not exist!";
00168
00169             if (files.size() > 1 && !utilities::Utils::askToContinue()) {
00170                 OUTPUT « "Aborting...\n";
00171                 LOG_INFO « "Application ended by user Input";
00172                 exit(1);
00173             }
00174
00175             continue;
00176         }
00177
00178         // Check if the file ends in .json
00179         if (file.extension() != ".json") {
00180             LOG_WARNING « "The file \"" « file « R"(" does not end in ".json")";
00181             OUTPUT « "If the file is not in JSON Format, continuing may "
00182                    "result in\nunexpected behaviour!\n";
00183
00184             if (!utilities::Utils::askToContinue()) {
00185                 OUTPUT « "Aborting...\n";
00186                 LOG_INFO « "Application ended by user Input";
00187                 exit(1);
00188             }
00189         }
00190
00191         validFiles.push_back(file.string());
00192     }
00193
00194     // Shrinks the vector if invalid files were found
00195     validFiles.shrink_to_fit();
00196     return validFiles;
00197 }
00198
00199 void parseFile(const std::string &file, const std::string &outputDirectory) {
00200     parsing::JsonHandler jsonHandler(file);
00201     const auto fileData = jsonHandler.getFileData();
00202     BatchCreator batchCreator(fileData);
00203     const std::shared_ptr<std::stringstream> dataStream =
00204         batchCreator.getDataStream();
00205     // Full filename is output directory + output file
00206     // {ReqFunc18}
00207     const std::string outputFileName =
00208         outputDirectory + fileData->getOutputFile();
00209
00210     if (std::filesystem::is_regular_file(outputFileName)) {
00211         if (!utilities::Utils::askToContinue(
00212                     "The file already exists, do you want to overwrite it? (y/n) ")) {
00213             OUTPUT « "Skipping file...\n";
00214             return;
00215         }
00216         OUTPUT « "Overwriting file...\n";
00217     }
00218
00219     std::ofstream outFile(outputFileName);
00220
00221     if (!outFile.good()) {
00222         throw exceptions::FailedToOpenFileException(outputFileName);
00223     }
00224
00225     outFile « dataStream->str();
00226 }
00227
00228 // Initialize easylogging++
00229 // Moved to bottom because it messed with doxygen
00230 INITIALIZE_EASYLOGGINGPP
```

10.20 src/sources/BatchCreator.cpp File Reference

Contains the implementation of the BatchCreator class.

```
#include "BatchCreator.hpp"
#include "LoggingWrapper.hpp"
#include <utility>
```

Include dependency graph for BatchCreator.cpp:



10.20.1 Detailed Description

Contains the implementation of the BatchCreator class.

Author

Maximilian Rodler

Date

22.04.2024

Version

0.2.2

See also

src/include/BatchCreator.hpp

Copyright

See LICENSE file

Definition in file BatchCreator.cpp.

10.21 BatchCreator.cpp

Go to the documentation of this file.

```
00001 /**
00002  * @file BatchCreator.cpp
00003  * @author Maximilian Rodler
00004  * @date 22.04.2024
00005  * @version 0.2.2
00006  * @brief Contains the implementation of the BatchCreator class.
00007  *
00008  * @see src/include/BatchCreator.hpp
00009  *
00010  * @copyright See LICENSE file
00011  */
00012
00013 #include "BatchCreator.hpp"
00014 #include "LoggingWrapper.hpp"
00015 #include <utility>
00016
00017
00018 BatchCreator::BatchCreator(std::shared_ptr<parsing::FileData> fileData)
00019     : fileData(std::move(fileData)) {
00020     LOG_INFO << "Initializing BatchCreator";
00021     this->dataStream = std::make_shared<std::stringstream>();
00022     this->createBatch();
00023 }
00024
00025 void BatchCreator::createBatch() const {
00026     LOG_INFO << "Creating Batch file";
00027     this->writeStart();
00028     this->writeHideShell();
00029     this->writeCommands();
00030     this->writeEnvVariables();
00031     this->writePathVariables();
00032     this->writeApplication();
00033     this->writeEnd();
00034 }
00035
00036 void BatchCreator::writeStart() const {
00037     LOG_INFO << "writing Start of Batch";
00038     // {ReqFunc24} - \r\n
00039     *this->dataStream << "@ECHO OFF\r\nC:\\Windows\\System32\\cmd.exe ";
00040 }
00041
00042 void BatchCreator::writeHideShell() const {
00043     if (this->fileData->getHideShell()) {
00044         LOG_INFO << "writing hide Shell";
00045         *this->dataStream << "/c ";
00046     }
00047     else {
00048         LOG_INFO << "writing show Shell";
00049         *this->dataStream << "/k ";
00050     }
00051 }
00052
00053 void BatchCreator::writeCommands() const {
00054     LOG_INFO << "writing Commands";
00055     *this->dataStream << "\"";
00056
00057     for (const std::string &command : this->fileData->getCommands()) {
00058         *this->dataStream << command << " && ";
00059     }
00060 }
00061
00062 void BatchCreator::writeEnvVariables() const {
00063     LOG_INFO << "writing Environment Variables";
00064
00065     for (const auto &[key, value] : this->fileData->getEnvironmentVariables()) {
00066         *this->dataStream << "set " << key << "=" << value << " && ";
00067     }
00068 }
00069
00070 void BatchCreator::writePathVariables() const {
00071     LOG_INFO << "writing Path Variables";
00072     *this->dataStream << "set path=";
00073
00074     for (const std::string &path : this->fileData->getPathValues()) {
00075         *this->dataStream << path << ";";
00076     }
00077
00078     *this->dataStream << "%path%";
00079 }
00080
00081 void BatchCreator::writeApplication() const {
00082     std::string appName = this->fileData->getOutputFile();
```

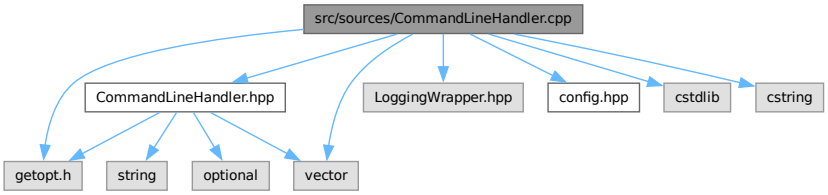
```
00083     appName = appName.substr(0, appName.find('.'));
00084
00085     if (this->fileData->getApplication().has_value()) {
00086         LOG_INFO « "writing start Application";
00087         *this->dataStream « " && start \"" « appName
00088                          « "\" "
00089                          // {ReqFunc24} - \r\n
00090                          « this->fileData->getApplication().value() « "\"\r\n";
00091     }
00092     else {
00093         LOG_INFO « "writing not start Application";
00094         // {ReqFunc24} - \r\n
00095         *this->dataStream « "\"\r\n";
00096     }
00097 }
00098
00099 void BatchCreator::writeEnd() const {
00100     *this->dataStream « "@ECHO ON";
00101 }
```

10.22 src/sources/CommandLineHandler.cpp File Reference

Implementation for the Command Line Interface.

```
#include "CommandLineHandler.hpp"
#include "LoggingWrapper.hpp"
#include "config.hpp"
#include <cstdlib>
#include <cstring>
#include <getopt.h>
#include <vector>
```

Include dependency graph for CommandLineHandler.cpp:



Namespaces

- namespace cli

  Includes everything regarding the CLI.

10.22.1 Detailed Description

Implementation for the Command Line Interface.

Author

Simon Blum

Date

2024-04-26

Version

0.2.2

See also

src/include/utility/CommandLineHandler.hpp

Copyright

See LICENSE file

Definition in file CommandLineHandler.cpp.

10.23 CommandLineHandler.cpp

Go to the documentation of this file.

```
00001 /**
00002  * @file CommandLineHandler.cpp
00003  * @author Simon Blum
00004  * @date 2024-04-26
00005  * @version 0.2.2
00006  * @brief Implementation for the Command Line Interface.
00007  *
00008  * @see src/include/utility/CommandLineHandler.hpp
00009  *
00010  * @copyright See LICENSE file
00011  */
00012
00013 #include "CommandLineHandler.hpp"
00014 #include "LoggingWrapper.hpp"
00015 #include "config.hpp"
00016 #include <cstdlib>
00017 #include <cstring>
00018 #include <getopt.h>
00019 #include <vector>
00020
00021 namespace cli {
00022 void CommandLineHandler::printHelp() {
00023     LOG_INFO << "Printing help message...";
00024     OUTPUT << BOLD << "Usage:\n"
00025            << RESET << "----------\n"
00026            << config::EXECUTABLE_NAME << " [options] [filenames]\n"
00027            << "\n"
00028            << BOLD << "Options:\n"
00029            << RESET << "----------\n"
00030            << "-o, --outdir\t [path]\t\tOutput the batch file to the given "
00031            "dir\n"
00032            << "-h, --help\t\t\tPrint this help message\n"
00033            << "-v, --version\t\t\tPrint the version number\n"
00034            << "-c, --credits\t\t\tPrint the credits\n\n"
00035            << "    --verbose\t\t\tStart the application in verbose mode\n"
00036            << ITALIC
00037            << "          \t\t\tNote: Verbose flag should be passed first!\n\n"
00038            << RESET << BOLD << "Filenames:\n"
00039            << RESET << "----------\n"
00040            << "The json files to be processed into batch files.\n"
00041            << "Multiple files should be seperated by spaces!\n\n";
00042     exit(0);
00043 }
00044 void CommandLineHandler::printVersion() {
00045     LOG_INFO << "Printing version number...";
00046     OUTPUT << config::PROJECT_NAME << " v" << config::MAJOR_VERSION << "."
00047            << config::MINOR_VERSION << "." << config::PATCH_VERSION << "\n";
00048     exit(0);
00049 }
```

```
00050 void CommandLineHandler::printCredits() {
00051     LOG_INFO « "Printing credits...";
00052     OUTPUT « BOLD « "Project information:\n"
00053            « RESET « "----------\n"
00054            « CYAN « BOLD « config::PROJECT_NAME « RESET « " v"
00055            « config::MAJOR_VERSION « "." « config::MINOR_VERSION « "."
00056            « config::PATCH_VERSION « "\n"
00057            « "\n"
00058            « config::DESCRIPTION « "\n"
00059            « "\n"
00060            « GREEN « "Authors: " « RESET « ITALIC « config::AUTHORS « RESET
00061            « "\n"
00062            « GREEN « "Documentation: " « RESET « ITALIC
00063            « config::HOMEPAGE_URL « RESET « GREEN « "\nContact: " « RESET
00064            « ITALIC « "simon21.blum@gmail.com" « "\n";
00065     exit(0);
00066 }
00067
00068 std::tuple<std::optional<std::string>, std::vector<std::string»
00069 CommandLineHandler::parseArguments(int argc, char *argv[]) {
00070     LOG_INFO « "Parsing arguments...";
00071     std::vector<std::string> files;
00072     std::optional<std::string> outDir;
00073
00074     while (true) {
00075         int optIndex = -1;
00076         struct option longOption = {};
00077         const auto result = getopt_long(argc, argv, "hvco:", options, &optIndex);
00078
00079         if (result == -1) {
00080             LOG_INFO « "End of options reached";
00081             break;
00082         }
00083
00084         switch (result) {
00085         case '?':
00086             LOG_ERROR « "Invalid Option (argument)";
00087             CommandLineHandler::printHelp();
00088
00089         case 'h':
00090             LOG_INFO « "Help option detected";
00091             CommandLineHandler::printHelp();
00092
00093         case 'v':
00094             LOG_INFO « "Version option detected";
00095             CommandLineHandler::printVersion();
00096
00097         case 'c':
00098             LOG_INFO « "Credit option detected";
00099             CommandLineHandler::printCredits();
00100
00101         case 'o':
00102             LOG_INFO « "Output option detected";
00103             outDir = optarg;
00104             break;
00105
00106         case 0:
00107             LOG_INFO « "Long option without short version detected";
00108             longOption = options[optIndex];
00109             LOG_INFO « "Option: " « longOption.name « " given";
00110
00111             if (strcmp(longOption.name, "verbose") == 0) {
00112                 logging::setVerboseMode(true);
00113                 LOG_INFO « "Verbose mode activated";
00114             }
00115
00116             break;
00117
00118         default:
00119             LOG_ERROR « "Default case for options reached!";
00120             break;
00121         }
00122     }
00123
00124     LOG_INFO « "Options have been parsed";
00125     LOG_INFO « "Checking for arguments...";
00126
00127     // Loop for {reqFunc5}
00128     while (optind < argc) {
00129         LOG_INFO « "Adding file: " « argv[optind];
00130         // Vector for {reqFunc7}
00131         files.emplace_back(argv[optind++]);
00132     }
00133
00134     LOG_INFO « "Arguments and options have been parsed";
00135     return {outDir, files};
00136 }
```

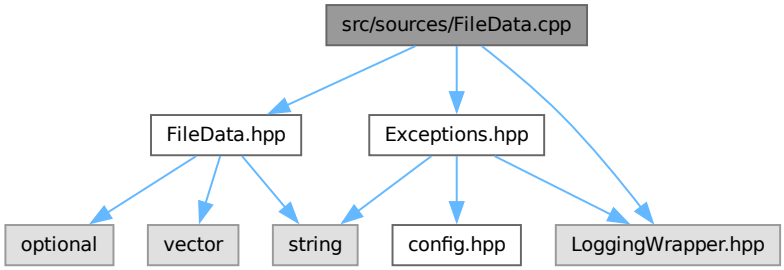
```
00137 } // namespace cli
```

10.24 src/sources/FileData.cpp File Reference

Implementation of the FileData class.

```
#include "FileData.hpp"
#include "Exceptions.hpp"
#include "LoggingWrapper.hpp"
```

Include dependency graph for FileData.cpp:



Namespaces

- namespace parsing

  The namespace containing everything relevant to parsing.

10.24.1 Detailed Description

Implementation of the FileData class.

Author

Elena Schwarzbach, Sonia Sinacci

Date

2024-04-26

Version

0.1.6

See also

src/include/FileData.hpp

Copyright

See LICENSE file

Definition in file FileData.cpp.

10.25 FileData.cpp

Go to the documentation of this file.

```
00001 /**
00002  * @file FileData.cpp
00003  * @author Elena Schwarzbach, Sonia Sinacci
00004  * @date 2024-04-26
00005  * @version 0.1.6
00006  * @brief Implementation of the FileData class.
00007  *
00008  * @see src/include/FileData.hpp
00009  *
00010  * @copyright See LICENSE file
00011  */
00012
00013 #include "FileData.hpp"
00014 #include "Exceptions.hpp"
00015 #include "LoggingWrapper.hpp"
00016
00017 namespace parsing {
00018 void FileData::setOutputFile(std::string &newOutputfile) {
00019     LOG_INFO « "Setting outputfile to...";
00020
00021     // If no value for key "outputfile"
00022     if (newOutputfile.empty()) {
00023         LOG_INFO « "Escalating error to ErrorHandler::invalidValue!";
00024         throw exceptions::InvalidValueException("outputfile",
00025                                                 "Outputfile can't be empty!");
00026     }
00027
00028     // If outputfile is already set
00029     if (!this->outputfile.empty()) {
00030         LOG_INFO « "Escalating error to ErrorHandler::invalidValue!";
00031         throw exceptions::InvalidValueException("outputfile",
00032                                                 "Outputfile is already set!");
00033     }
00034
00035     // If outputfile does not end with ".bat"
00036     if (!newOutputfile.ends_with(".bat")) {
00037         newOutputfile += ".bat";
00038         LOG_WARNING « "Outputfile does not end with \".bat\", adding it now: "
00039                     « newOutputfile;
00040     }
00041
00042     this->outputfile = newOutputfile;
00043     LOG_INFO « "Outputfile set to: " « this->outputfile « "\n";
00044 }
00045
00046 void FileData::setApplication(const std::string &newApplication) {
00047     if (newApplication.empty()) {
00048         LOG_INFO « "newApplication empty, returning";
00049         return;
00050     }
00051
00052     LOG_INFO « "Setting application to: " « newApplication « "\n";
00053     this->application.emplace(newApplication);
00054 }
00055
00056 void FileData::addCommand(const std::string &command) {
00057     if (command.empty()) {
00058         LOG_INFO « "Escalating error to ErrorHandler::invalidValue!";
00059         throw exceptions::InvalidValueException("command",
00060                                                 "Command value is empty!");
00061     }
00062
00063     LOG_INFO « "Adding command: " « command « "\n";
00064     this->commands.push_back(command);
00065 }
00066
00067 void FileData::addEnvironmentVariable(const std::string &name,
00068                                       const std::string &value) {
00069     if (name.empty()) {
00070         LOG_INFO « "Escalating error to ErrorHandler::invalidValue!";
00071         throw exceptions::InvalidValueException("name", "Name value is empty!");
00072     }
00073
00074     if (value.empty()) {
00075         LOG_INFO « "Escalating error to ErrorHandler::invalidValue!";
00076         throw exceptions::InvalidValueException("key", "Key value is empty");
00077     }
00078
00079     LOG_INFO « "Adding environment variable: " « name « "=" « value « "\n";
00080     this->environmentVariables.emplace_back(name, value);
00081 }
00082
```

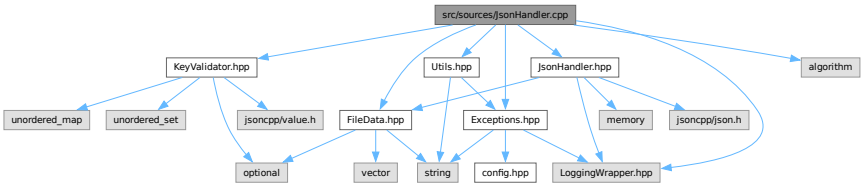
```
00083 void FileData::addPathValue(const std::string &pathValue) {
00084     if (pathValue.empty()) {
00085         LOG_INFO « "Escalating error to ErrorHandler::invalidValue!";
00086         throw exceptions::InvalidValueException("path", "Path value is empty");
00087     }
00088
00089     LOG_INFO « "Adding path value: " « pathValue « "\n";
00090     this->pathValues.push_back(pathValue);
00091 }
00092 } // namespace parsing
```

10.26 src/sources/JsonHandler.cpp File Reference

Implementation of the JsonHandler class.

```
#include "JsonHandler.hpp"
#include "Exceptions.hpp"
#include "FileData.hpp"
#include "KeyValidator.hpp"
#include "LoggingWrapper.hpp"
#include "Utils.hpp"
#include <algorithm>
```

Include dependency graph for JsonHandler.cpp:



Namespaces

- namespace parsing

  The namespace containing everything relevant to parsing.

10.26.1 Detailed Description

Implementation of the JsonHandler class.

Author

Elena Schwarzbach, Sonia Sinacci

Date

2024-04-16

Version

0.1.6

See also

src/include/JsonHandler.hpp

Copyright

See LICENSE file

Definition in file JsonHandler.cpp.

10.27 JsonHandler.cpp

Go to the documentation of this file.

```
00001 /**
00002  * @file JsonHandler.cpp
00003  * @author Elena Schwarzbach, Sonia Sinacci
00004  * @date 2024-04-16
00005  * @version 0.1.6
00006  * @brief Implementation of the JsonHandler class.
00007  *
00008  * @see src/include/JsonHandler.hpp
00009  *
00010  * @copyright See LICENSE file
00011  */
00012
00013 #include "JsonHandler.hpp"
00014 #include "Exceptions.hpp"
00015 #include "FileData.hpp"
00016 #include "KeyValidator.hpp"
00017 #include "LoggingWrapper.hpp"
00018 #include "Utils.hpp"
00019
00020 #include <algorithm>
00021
00022 namespace parsing {
00023 JsonHandler::JsonHandler(const std::string &filename) {
00024     LOG_INFO « "Initializing JSONHandler with filename: " « filename « "\n";
00025     this->root = parseFile(filename);
00026 }
00027
00028 std::shared_ptr<Json::Value> JsonHandler::parseFile(const std::string &filename)
00029
00030 {
00031     LOG_INFO « "Parsing file: " « filename « "\n";
00032     // Can open files anywhere with relative/absolute path
00033     // - {ReqFunc5}
00034     std::ifstream file(filename);
00035     Json::Value newRoot;
00036
00037     // Json::Reader.parse() returns false if parsing fails
00038     if (Json::Reader reader; !reader.parse(file, newRoot)) {
00039         throw exceptions::ParsingException(filename);
00040     }
00041
00042     // Validate keys
00043     // Check for errors
00044     if (auto errors = KeyValidator::getInstance().validateKeys(newRoot, filename);
00045             !errors.empty()) {
00046         throw exceptions::InvalidKeyException(errors);
00047     }
00048
00049     LOG_INFO « "File \"" « filename « "\" has been parsed\n";
00050     return std::make_shared<Json::Value>(newRoot);
00051 }
00052
00053 std::shared_ptr<FileData> JsonHandler::getFileData() {
00054     LOG_INFO « "Creating FileData object for return...\n";
00055     return this->createFileData();
00056 }
00057
00058 std::shared_ptr<FileData> JsonHandler::createFileData() {
00059     LOG_INFO « "Creating FileData object...\n";
00060     this->data = std::make_shared<FileData>();
00061     this->assignOutputFile();
00062     this->assignHideShell();
00063     this->assignApplication();
```

```
00064     this->assignEntries();
00065     return this->data;
00066 }
00067
00068 void JsonHandler::assignOutputFile() const {
00069     LOG_INFO « "Assigning outputfile...\n";
00070     std::string outputFile = this->root->get("outputfile", "").asString();
00071     if (containsBadCharacter(outputFile)) {
00072         outputFile = utilities::Utils::escapeString(outputFile);
00073         throw exceptions::ContainsBadCharacterException(outputFile);
00074     }
00075     this->data->setOutputFile(outputFile);
00076 }
00077
00078 void JsonHandler::assignHideShell() const {
00079     LOG_INFO « "Assigning hide shell...\n";
00080     // If the 'hideshell' key is not given, it defaults to false
00081     this->data->setHideShell(this->root->get("hideshell", false).asBool());
00082 }
00083
00084 void JsonHandler::assignApplication() const {
00085     LOG_INFO « "Assigning application...\n";
00086     std::string application = this->root->get("application", "").asString();
00087     if (containsBadCharacter(application)) {
00088         application = utilities::Utils::escapeString(application);
00089         throw exceptions::ContainsBadCharacterException(application);
00090     }
00091     this->data->setApplication(application);
00092 }
00093
00094 void JsonHandler::assignEntries() const {
00095     LOG_INFO « "Assigning entries...\n";
00096
00097     for (const auto &entry : this->root->get("entries", "")) {
00098         std::string entryType = entry.get("type", "").asString();
00099
00100         if (entryType == "EXE") {
00101             LOG_INFO « "Calling function to assign command...\n";
00102             this->assignCommand(entry);
00103         } else if (entryType == "ENV") {
00104             LOG_INFO « "Calling function to assign environment variable...\n";
00105             this->assignEnvironmentVariable(entry);
00106         } else if (entryType == "PATH") {
00107             LOG_INFO « "Calling function to assign path value...\n";
00108             this->assignPathValue(entry);
00109         } else {
00110             // Due to validation beforehand - this should never be reached!
00111             throw exceptions::UnreachableCodeException(
00112                 "Unknown entries should be caught by KeyValidator!\nPlease report "
00113                 "this bug!");
00114         }
00115     }
00116 }
00117
00118 void JsonHandler::assignCommand(const Json::Value &entry) const {
00119     LOG_INFO « "Assigning command...\n";
00120     std::string command = entry.get("command", "").asString();
00121     if (containsBadCharacter(command)) {
00122         command = utilities::Utils::escapeString(command);
00123         throw exceptions::ContainsBadCharacterException(command);
00124     }
00125     this->data->addCommand(command);
00126 }
00127
00128 void JsonHandler::assignEnvironmentVariable(const Json::Value &entry) const {
00129     LOG_INFO « "Assigning environment variable...\n";
00130     std::string key = entry.get("key", "").asString();
00131     std::string value = entry.get("value", "").asString();
00132
00133     if (containsBadCharacter(key)) {
00134         key = utilities::Utils::escapeString(key);
00135         throw exceptions::ContainsBadCharacterException(key);
00136     }
00137     if (containsBadCharacter(value)) {
00138         value = utilities::Utils::escapeString(value);
00139         throw exceptions::ContainsBadCharacterException(value);
00140     }
00141     this->data->addEnvironmentVariable(key, value);
00142 }
00143
00144 void JsonHandler::assignPathValue(const Json::Value &entry) const {
00145     LOG_INFO « "Assigning path value...\n";
00146     std::string path = entry.get("path", "").asString();
00147     if (containsBadCharacter(path)) {
00148         path = utilities::Utils::escapeString(path);
00149         throw exceptions::ContainsBadCharacterException(path);
00150     }
```

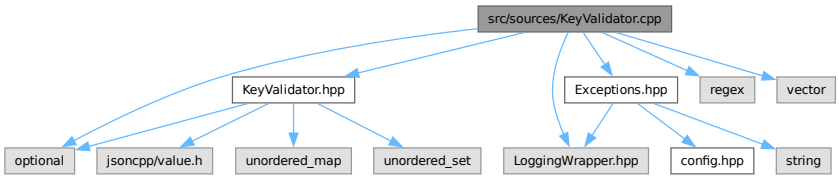
```
00151     this->data->addPathValue(path);
00152 }
00153
00154 bool JsonHandler::containsBadCharacter(const std::string_view &str) {
00155
00156     // Set of characters which may not be in the string
00157     static const std::unordered_set<char> badChars = {
00158         '\n', '\t', '\r', '\0', '\x1A', '|', ';', '<', '>', '!', '%', '"', '\''
00159     };
00160
00161     // Lambda function which returns true, if the char is bad
00162     auto isBadCharacter = [](char c) {
00163         return badChars.contains(c);
00164     };
00165
00166     return std::ranges::any_of(str, isBadCharacter);
00167 }
00168 } // namespace parsing
```

10.28 src/sources/KeyValidator.cpp File Reference

Implementation for the KeyValidator class.

```
#include "KeyValidator.hpp"
#include "Exceptions.hpp"
#include "LoggingWrapper.hpp"
#include <optional>
#include <regex>
#include <vector>
```

Include dependency graph for KeyValidator.cpp:



Namespaces

- namespace parsing

  The namespace containing everything relevant to parsing.

10.28.1 Detailed Description

Implementation for the KeyValidator class.

Author

Simon Blum

Date

2024-04-26

Version

0.2.2

See also

src/include/KeyValidator.hpp

Copyright

See LICENSE file

Definition in file KeyValidator.cpp.

10.29 KeyValidator.cpp

Go to the documentation of this file.

```
00001 /**
00002  * @file KeyValidator.cpp
00003  * @author Simon Blum
00004  * @date 2024-04-26
00005  * @version 0.2.2
00006  * @brief Implementation for the KeyValidator class.
00007  *
00008  * @see src/include/KeyValidator.hpp
00009  *
00010  * @copyright See LICENSE file
00011  */
00012 #include "KeyValidator.hpp"
00013 #include "Exceptions.hpp"
00014 #include "LoggingWrapper.hpp"
00015 #include <optional>
00016 #include <regex>
00017 #include <vector>
00018
00019 namespace parsing {
00020 KeyValidator &KeyValidator::getInstance() {
00021     static KeyValidator keyValidator;
00022     LOG_INFO « "Returning KeyValidator instance!";
00023     return keyValidator;
00024 }
00025
00026 std::vector<std::tuple<int, std::string»
00027 KeyValidator::validateKeys(const Json::Value &root,
00028                            const std::string &filename) {
00029     LOG_INFO « "Validating keys for file " « filename;
00030     std::vector<std::tuple<int, std::string» wrongKeys =
00031         getWrongKeys(root, filename);
00032
00033     // Inline declaration to prevent leaking in outer scope
00034     for (Json::Value entries = root.get("entries", "");
00035             const auto &entry : entries) {
00036         LOG_INFO « "Validating entry";
00037         const auto entryKeys = entry.getMemberNames();
00038         // Create a set of the entry keys for faster lookup (O(1) instead of O(n))
00039         std::unordered_set<std::string> entryKeysSet(entryKeys.begin(),
00040                 entryKeys.end());
00041
00042         const auto wrongEntries = validateEntries(filename, entryKeysSet);
00043
00044         // Combine wrong keys
00045         wrongKeys.insert(wrongKeys.end(), wrongEntries.begin(), wrongEntries.end());
00046
00047         LOG_INFO « "Validating types for entry";
00048         validateTypes(filename, entry, entryKeysSet);
00049     }
00050
00051     return wrongKeys;
00052 }
00053
00054 std::vector<std::tuple<int, std::string»
00055 KeyValidator::getWrongKeys(const Json::Value &root,
00056                            const std::string &filename) const {
```

```
00057     std::vector<std::tuple<int, std::string» wrongKeys = {};
00058
00059     LOG_INFO « "Checcking for wrong keys in file " « filename « "!";
00060     for (const auto &key : root.getMemberNames()) {
00061         if (!validKeys.contains(key)) {
00062             LOG_WARNING « "Found wrong key " « key « "!";
00063             const auto error = getUnknownKeyLine(filename, key);
00064
00065             if (!error.has_value()) {
00066                 LOG_ERROR « "Unable to find line of wrong key!";
00067                 continue;
00068             }
00069
00070             // If the line can't be found, add -1 as line number
00071             wrongKeys.emplace_back(error.value_or(-1), key);
00072         }
00073     }
00074
00075     return wrongKeys;
00076 }
00077
00078 std::vector<std::tuple<int, std::string» KeyValidator::validateEntries(
00079     const std::string &filename,
00080     const std::unordered_set<std::string> &entryKeys) const {
00081     std::vector<std::tuple<int, std::string» wrongKeys = {};
00082
00083     for (const auto &key : entryKeys) {
00084         LOG_INFO « "Checking key " « key « "!";
00085         if (!validEntryKeys.contains(key)) {
00086             const auto error = getUnknownKeyLine(filename, key);
00087
00088             if (!error.has_value()) {
00089                 LOG_ERROR « "Unable to find line of wrong key!";
00090                 continue;
00091             }
00092
00093             wrongKeys.emplace_back(error.value_or(-1), key);
00094         }
00095     }
00096
00097     return wrongKeys;
00098 }
00099
00100 void KeyValidator::validateTypes(
00101     const std::string &filename, const Json::Value &entry,
00102     const std::unordered_set<std::string> &entryKeys) {
00103     // Gett the type of the entry - error if not found
00104     const std::string type = entry.get("type", "ERROR").asString();
00105     LOG_INFO « "Validating type " « type;
00106
00107     // If the type is not found, throw an exception
00108     if (type == "ERROR") {
00109         throw exceptions::MissingTypeException();
00110         // If the type is not known, throw an exception
00111         // @note This should already have been checked
00112     } else if (!typeToKeys.contains(type)) {
00113         const std::optional<int> line =
00114             getUnknownKeyLine(filename, std::string(type));
00115
00116         if (!line.has_value()) {
00117             LOG_INFO « "Unable to find line of wrong type!";
00118         }
00119
00120         throw exceptions::InvalidTypeException(std::string(type), line.value());
00121         // If the type is known, check if all necessary keys are present
00122     } else {
00123         for (const auto &key : typeToKeys[type]) {
00124             LOG_INFO « "Checking key " « key « " for type " « type;
00125             if (!entryKeys.contains(key)) {
00126                 throw exceptions::MissingKeyException(key, type);
00127             }
00128         }
00129     }
00130 }
00131
00132 std::optional<int>
00133 KeyValidator::getUnknownKeyLine(const std::string &filename,
00134                                 const std::string &wrongKey) {
00135     std::ifstream file(filename);
00136     LOG_INFO « "Checking for key " « wrongKey « " in file " « filename;
00137
00138     if (!file.is_open()) {
00139         LOG_ERROR « "File not open!";
00140         return std::nullopt;
00141     }
00142
00143     std::string line;
```

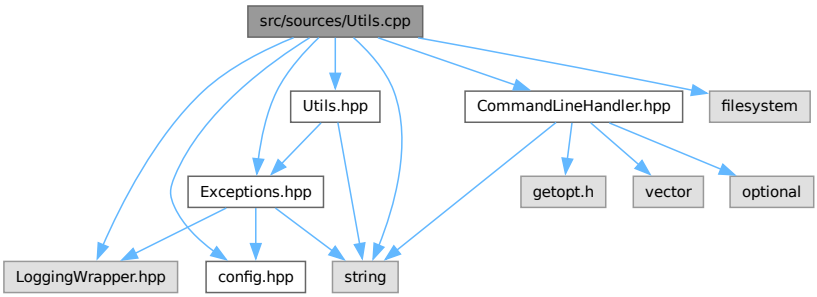
```
00144     // Create a regex pattern that matches the wrong key whole word
00145     const std::regex wrongKeyPattern("\\b" + wrongKey + "\\b");
00146 
00147     for (int lineNumber = 1; std::getline(file, line); ++lineNumber) {
00148         if (std::regex_search(line, wrongKeyPattern)) {
00149             LOG_INFO « "Found key " « wrongKey « " in line " « lineNumber;
00150 
00151             return lineNumber;
00152         }
00153     }
00154 
00155     return std::nullopt;
00156 }
00157 
00158 } // namespace parsing
```

10.30 src/sources/Utils.cpp File Reference

Implementation for the Utils class.

```
#include "Utils.hpp"
#include "CommandLineHandler.hpp"
#include "Exceptions.hpp"
#include "config.hpp"
#include <LoggingWrapper.hpp>
#include <filesystem>
#include <string>
```

Include dependency graph for Utils.cpp:



Namespaces

- namespace utilities

  Includes all utilities.

10.30.1 Detailed Description

Implementation for the Utils class.

Author

Simon Blum

Date

2024-04-26

Version

0.2.2

This file includes the implementation for the Utils class.

See also

src/include/utility/Utilities.hpp

Copyright

See LICENSE file

Definition in file Utils.cpp.

10.31 Utils.cpp

Go to the documentation of this file.

```
00001 /**
00002  * @file Utils.cpp
00003  * @author Simon Blum
00004  * @date 2024-04-26
00005  * @version 0.2.2
00006  * @brief Implementation for the Utils class
00007  * @details
00008  * This file includes the implementation for the Utils class.
00009  *
00010  * @see src/include/utility/Utilities.hpp
00011  *
00012  * @copyright See LICENSE file
00013  */
00014
00015 #include "Utils.hpp"
00016 #include "CommandLineHandler.hpp"
00017 #include "Exceptions.hpp"
00018 #include "config.hpp"
00019
00020 #include <LoggingWrapper.hpp>
00021 #include <filesystem>
00022 #include <string>
00023
00024 namespace utilities {
00025 void Utils::setupEasyLogging(const std::string &configFile) {
00026     el::Configurations conf(configFile);
00027     el::Loggers::reconfigureAllLoggers(conf);
00028     LOG_INFO « "Running " « config::PROJECT_NAME « " v"
00029              « config::MAJOR_VERSION « "." « config::MINOR_VERSION « "."
00030              « config::PATCH_VERSION;
00031     LOG_INFO « "For more Information checkout " « config::HOMEPAGE_URL;
00032     LOG_INFO « "EasyLogging has been setup!";
00033 }
00034 bool Utils::askToContinue(const std::string &prompt) {
00035     std::string userInput;
00036     LOG_INFO « "Asking for user Confirmation to continue...";
00037     OUTPUT « cli::BOLD « prompt « cli::RESET;
00038
00039     do {
00040         std::cin » userInput;
00041         std::ranges::transform(userInput, userInput.begin(), ::tolower);
00042
00043         if (userInput != "y" && userInput != "yes" && userInput != "n" &&
00044                 userInput != "no") {
00045             LOG_INFO « "Wrong user input!";
00046             OUTPUT « cli::ITALIC « "Please enter Y/Yes or N/No!\n" « cli::RESET;
```

```
00047             continue;
00048         }
00049
00050         break;
00051     } while (true);
00052
00053     return userInput == "y" || userInput == "yes";
00054 }
00055 void Utils::checkConfigFile(const std::string &configFile) {
00056     if (!std::filesystem::is_regular_file(configFile)) {
00057         std::cerr « cli::RED « cli::BOLD
00058                   « "Fatal: Easylogging configuration file not found at:\n"
00059                   « cli::RESET « cli::ITALIC « "\n\t\"" « configFile « "\"\n\n"
00060                   « cli::RESET;
00061         std::cout « "Aborting...\n";
00062         exit(1);
00063     }
00064 }
00065 const std::string &Utils::checkDirectory(std::string &directory) {
00066     if (!directory.empty() && directory.back() != '/' &&
00067             directory.back() != '\\') {
00068         directory += '/';
00069     }
00070
00071     if (!std::filesystem::exists(directory)) {
00072         throw exceptions::NoSuchDirException(directory);
00073     }
00074
00075     return directory;
00076 }
00077 bool Utils::handleParseException(const std::exception &e,
00078                                  const std::vector<std::string>::iterator &file,
00079                                  const std::vector<std::string> &files) {
00080     OUTPUT « "\nThere has been a error while trying to parse \"" « *file
00081            « ":\n";
00082     LOG_ERROR « e.what();
00083
00084     if (std::next(file) != files.end() &&
00085             !utilities::Utils::askToContinue(
00086                 "Do you want to continue with the other files? (y/n) "
00087                 "")) {
00088         OUTPUT « "Aborting...";
00089         LOG_INFO « "Application ended by user Input";
00090         return false;
00091     }
00092
00093     std::cout « std::endl;
00094     return true;
00095 }
00096
00097 std::string Utils::escapeString(const std::string &str) {
00098     // Map of characters to their escape sequences
00099     static const std::unordered_map<char, std::string> escapeSequences = {
00100         {'\\', "\\\\"},     // Replace backslash with double backslash
00101         {'\n', "\\n"},      // Replace newline with backslash-n
00102         {'\t', "\\t"},      // Replace tab with backslash-t
00103         {'\x1A', "\\x1A"}, // Replace end of file with backslash-x1A
00104         {'\r', "\\r"}       // Replace carriage return with backslash-r
00105     };
00106
00107     std::ostringstream escapedStream;
00108     for (char c : str) {
00109         // Replace a character with it's counterpart, if it is in the map
00110         if (escapeSequences.contains(c)) {
00111             escapedStream « escapeSequences.at(c);
00112         } else {
00113             escapedStream « c;
00114         }
00115     }
00116     return escapedStream.str();
00117 }
00118
00119 } // namespace utilities
```

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