c++ library collection

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Contents

1	Срр	Libs		1
2	Nam	espace	e Index	3
	2.1	Names	space List	3
3	Hier	archica	Il Index	5
	3.1	Class I	Hierarchy	5
4	Clas	s Index	•	7
	4.1	Class I	List	7
5	File	Index		9
	5.1	File Lis	st	9
6	Nam	espace	e Documentation	11
	6.1	devfix	Namespace Reference	11
	6.2	devfix:	::base Namespace Reference	11
		6.2.1	Typedef Documentation	11
			6.2.1.1 sp	11
			6.2.1.2 up	12
	6.3	devfix:	::base::error Namespace Reference	12
		6.3.1	Detailed Description	12
	6.4	devfix:	::base::io Namespace Reference	12
		6.4.1	Detailed Description	13
		6.4.2	Typedef Documentation	13
			6.4.2.1 available_t	13
			6.4.2.2 close_t	13
			6.4.2.3 flush_t	13
			6.4.2.4 is_closed_t	13
			6.4.2.5 read_t	13
			6.4.2.6 skip_t	14
			6.4.2.7 write_t	14
		6.4.3	Variable Documentation	14
			6.4.3.1 DEFAULT_CLOSE	14
			6.4.3.2 DEFAULT_IS_CLOSED	14
	6 5	doufive	renet Namespassa Reference	11

ii CONTENTS

7	Clas	s Docu	mentation	15	
	7.1	devfix::base::error::baseexception Struct Reference			
		7.1.1	Detailed Description	16	
		7.1.2	Constructor & Destructor Documentation	16	
			7.1.2.1 baseexception() [1/2]	16	
			7.1.2.2 baseexception() [2/2]	16	
			7.1.2.3 ~baseexception()	16	
		7.1.3	Member Function Documentation	17	
			7.1.3.1 get_errno()	17	
			7.1.3.2 what()	17	
		7.1.4	Member Data Documentation	17	
			7.1.4.1 err	17	
			7.1.4.2 what_arg	17	
	7.2	devfix:	:net::inetaddress Struct Reference	18	
		7.2.1	Member Typedef Documentation	18	
			7.2.1.1 address_t	18	
			7.2.1.2 port_t	18	
		7.2.2	Member Enumeration Documentation	18	
			7.2.2.1 family_t	18	
		7.2.3	Constructor & Destructor Documentation	19	
			7.2.3.1 inetaddress() [1/2]	19	
			7.2.3.2 inetaddress() [2/2]	19	
		7.2.4	Member Function Documentation	19	
			7.2.4.1 get_address()	19	
			7.2.4.2 get_family()	20	
			7.2.4.3 get_host()	20	
			7.2.4.4 get_port()	20	
	7.3	devfix:	:base::io::inputstream Struct Reference	21	
		7.3.1	Detailed Description	22	
		7.3.2	Constructor & Destructor Documentation	22	

CONTENTS

		7.3.2.1	~inputstream()	22
	7.3.3	Member	Function Documentation	22
		7.3.3.1	available()	22
		7.3.3.2	close()	23
		7.3.3.3	is_closed()	23
		7.3.3.4	read()	23
		7.3.3.5	skip()	24
7.4	devfix:	:base::erro	pr::interruptedexception Struct Reference	24
	7.4.1	Detailed	Description	25
	7.4.2	Construc	ctor & Destructor Documentation	26
		7.4.2.1	interruptedexception() [1/2]	26
		7.4.2.2	interruptedexception() [2/2]	26
7.5	devfix:	:base::erro	pr::ioexception Struct Reference	26
	7.5.1	Detailed	Description	27
	7.5.2	Construc	ctor & Destructor Documentation	27
		7.5.2.1	ioexception() [1/2]	28
		7.5.2.2	ioexception() [2/2]	28
7.6	devfix:	:net::netbu	uilder Struct Reference	28
	7.6.1	Construc	ctor & Destructor Documentation	29
		7.6.1.1	netbuilder()	29
	7.6.2	Member	Function Documentation	29
		7.6.2.1	create_serversocket()	29
		7.6.2.2	create_socket()	29
7.7	devfix:	:base::io::d	outputstream Struct Reference	30
	7.7.1	Detailed	Description	31
	7.7.2	Construc	ctor & Destructor Documentation	31
		7.7.2.1	~outputstream()	31
	7.7.3	Member	Function Documentation	31
		7.7.3.1	close()	31
		7.7.3.2	flush()	32

iv CONTENTS

		7.7.3.3	is_closed()	32
		7.7.3.4	write()	32
7.8	devfix::	:net::serve	rsocket Struct Reference	33
	7.8.1	Construc	tor & Destructor Documentation	33
		7.8.1.1	~serversocket()	33
	7.8.2	Member	Function Documentation	33
		7.8.2.1	accept()	33
		7.8.2.2	close()	33
		7.8.2.3	get_accept_timeout()	33
		7.8.2.4	get_address()	34
		7.8.2.5	get_reuse_address()	34
		7.8.2.6	is_closed()	34
		7.8.2.7	set_accept_timeout()	34
7.9	devfix::	:base::io::s	sink Struct Reference	34
	7.9.1	Construc	tor & Destructor Documentation	35
		7.9.1.1	sink()	35
	7.9.2	Member	Function Documentation	36
		7.9.2.1	close()	36
		7.9.2.2	flush()	36
		7.9.2.3	is_closed()	36
		7.9.2.4	write()	36
7.10	devfix::	:net::socke	et Struct Reference	37
	7.10.1	Member	Typedef Documentation	37
		7.10.1.1	timeout_t	37
	7.10.2	Construc	tor & Destructor Documentation	38
		7.10.2.1	~socket()	38
	7.10.3	Member	Function Documentation	38
		7.10.3.1	get_inputstream()	38
		7.10.3.2	get_local_address()	38
		7.10.3.3	get_outputstream()	38

CONTENTS

		7.10.3.4 get_remote_address()	38
		7.10.3.5 get_timeout()	38
		7.10.3.6 interrupted()	39
		7.10.3.7 set_interrupted()	39
		7.10.3.8 set_timeout()	39
	7.10.4	Member Data Documentation	39
		7.10.4.1 DEFAULT_READ_BLOCKING_TIME	39
		7.10.4.2 DEFAULT_TIMEOUT	39
7.11	devfix::	net::socketexception Struct Reference	40
	7.11.1	Detailed Description	40
	7.11.2	Constructor & Destructor Documentation	41
		7.11.2.1 socketexception() [1/2]	41
		7.11.2.2 socketexception() [2/2]	41
7.12	devfix::	base::io::source Struct Reference	41
	7.12.1	Constructor & Destructor Documentation	42
		7.12.1.1 source()	43
	7.12.2	Member Function Documentation	43
		7.12.2.1 available()	43
		7.12.2.2 close()	43
		7.12.2.3 is_closed()	44
		7.12.2.4 read()	44
		7.12.2.5 skip()	44
7.13	devfix::	base::error::timeoutexception Struct Reference	45
	7.13.1	Detailed Description	46
	7.13.2	Constructor & Destructor Documentation	46
		7.13.2.1 timeoutexception() [1/2]	46
		7.13.2.2 timeoutexception() [2/2]	46

vi

8	File	Docum	entation		49
	8.1	cmake	-build-deb	ug/CMakeFiles/3.15.3/CompilerIdCXX/CMakeCXXCompilerId.cpp File Reference .	49
		8.1.1	Macro D	efinition Documentation	49
			8.1.1.1	ARCHITECTURE_ID	49
			8.1.1.2	COMPILER_ID	50
			8.1.1.3	CXX_STD	50
			8.1.1.4	DEC	50
			8.1.1.5	HEX	50
			8.1.1.6	PLATFORM_ID	50
			8.1.1.7	STRINGIFY	51
			8.1.1.8	STRINGIFY_HELPER	51
		8.1.2	Function	Documentation	51
			8.1.2.1	main()	51
		8.1.3	Variable	Documentation	51
			8.1.3.1	info_arch	51
			8.1.3.2	info_compiler	51
			8.1.3.3	info_language_dialect_default	52
			8.1.3.4	info_platform	52
	8.2	devfix/l	base/error	/baseexception.h File Reference	52
		8.2.1	Macro D	efinition Documentation	53
			8.2.1.1	exception_guard	53
			8.2.1.2	exception_guard_m	53
	8.3	devfix/l	base/error	/interruptedexception.h File Reference	54
	8.4	devfix/l	base/error	/ioexception.h File Reference	54
	8.5	devfix/l	base/error	/namespace.h File Reference	55
	8.6	devfix/l	base/io/na	mespace.h File Reference	55
	8.7	devfix/l	base/error	/timeoutexception.h File Reference	56
	8.8	devfix/l	base/io/inp	outstream.h File Reference	56
	8.9	devfix/l	base/io/iot	ypes.h File Reference	57
	8.10	devfix/l	base/io/ou	tputstream.h File Reference	59

CONTENTS vii

8.11	devfix/b	ase/io/sink.cpp File Reference	0
8.12	devfix/b	ase/io/sink.h File Reference	0
8.13	devfix/b	ase/io/source.cpp File Reference	2
8.14	devfix/b	ase/io/source.h File Reference	2
8.15	devfix/b	ase/memory.h File Reference	4
8.16	devfix/b	ase/platform.h File Reference	5
	8.16.1	Macro Definition Documentation	5
		8.16.1.1FILENAME	5
		8.16.1.2 PLATFORM_LINUX	5
		8.16.1.3 PLATFORM_UNSUPPORTED 6	5
		8.16.1.4 SOURCE_LINE	6
8.17	devfix/n	et/inetaddress.cpp File Reference	6
	8.17.1	Variable Documentation	6
		8.17.1.1 PLATFORM_UNSUPPORTED	6
8.18	devfix/n	et/inetaddress.h File Reference	7
8.19	devfix/n	et/lnx/lnx_serversocket.cpp File Reference	8
8.20	devfix/n	et/lnx/lnx_serversocket.h File Reference	8
8.21	devfix/n	et/lnx/lnx_socket.cpp File Reference	8
8.22	devfix/n	et/lnx/lnx_socket.h File Reference	9
8.23	devfix/n	et/netbuilder.cpp File Reference	9
8.24	devfix/n	et/netbuilder.h File Reference	0
	8.24.1	Variable Documentation	'1
		8.24.1.1 PLATFORM_UNSUPPORTED	'1
8.25	devfix/n	et/serversocket.h File Reference	2
8.26	devfix/n	et/socket.h File Reference	2
8.27	devfix/n	et/socketexception.h File Reference	'3
8.28	devfix/n	et/test/test_inetaddress.cpp File Reference	4
	8.28.1	Function Documentation	5
		8.28.1.1 TEST()	5
8.29	devfix/n	et/test/test_socket.cpp File Reference	5
	8.29.1	Function Documentation	6
		8.29.1.1 TEST() [1/2]	6
		8.29.1.2 TEST() [2/2]	6
	8.29.2	Variable Documentation	6
		8.29.2.1 TEST_ARRAY	6
		8.29.2.2 TEST_DOUBLE	6
		8.29.2.3 TEST_FLOAT	6
		8.29.2.4 TEST_LONG	6
		8.29.2.5 TEST_PORT	7
8.30	READM	TE.md File Reference	7
8.31	testrunr	ner.cpp File Reference	7
	8.31.1	Function Documentation	7
		8.31.1.1 main()	7

!!!	CONTENT
	CONTENTS

Index 79

CppLibs

TODO

• input stream and output stream separate closable (?)

Build

run ./configure make -C build

Documentation

available: here

2 CppLibs

Namespace Index

2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

levfix	11
levfix::base	11
levfix::base::error	
Namespace for general errors like timeouts or io failures	12
levfix::base::io	
Namespace for io tool, for instance streams	12
evfix::net	14

4 Namespace Index

Hierarchical Index

3.1 Class Hierarchy

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

exception
devfix::base::error::baseexception
devfix::base::error::interruptedexception
devfix::base::error::ioexception
devfix::base::error::timeoutexception
devfix::net::socketexception
devfix::net::inetaddress
devfix::base::io::inputstream
devfix::base::io::source
devfix::net::netbuilder
devfix::base::io::outputstream
devfix::base::io::sink
devfix::net::serversocket
devfix::net::socket

6 Hierarchical Index

Class Index

4.1 Class List

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

devfix::base::error::baseexception	
Abstract error base class	15
devfix::net::inetaddress	18
devfix::base::io::inputstream	
Superclass of all classes representing an input stream of bytes	21
devfix::base::error::interruptedexception	
Thrown when an operation is interrupted, either before or during the activity	24
devfix::base::error::ioexception	
Signals that an I/O error of some sort has occurred	26
devfix::net::netbuilder	28
devfix::base::io::outputstream	
Superclass of all classes representing an output stream of bytes	
devfix::net::serversocket	33
devfix::base::io::sink	34
devfix::net::socket	37
devfix::net::socketexception	
Thrown to indicate that there is an error creating or accessing a Socket	40
devfix::base::io::source	41
devfix::base::error::timeoutexception	
Exception thrown when a blocking operation times out	45

8 Class Index

File Index

5.1 File List

Here is a list of all files with brief descriptions:

testrunner.cpp
cmake-build-debug/CMakeFiles/3.15.3/CompilerIdCXX/CMakeCXXCompilerId.cpp
devfix/base/memory.h
devfix/base/platform.h
devfix/base/error/baseexception.h
devfix/base/error/interruptedexception.h
devfix/base/error/ioexception.h
devfix/base/error/namespace.h
devfix/base/error/timeoutexception.h
devfix/base/io/inputstream.h
devfix/base/io/iotypes.h
devfix/base/io/namespace.h
devfix/base/io/outputstream.h
devfix/base/io/sink.cpp
devfix/base/io/sink.h
devfix/base/io/source.cpp
devfix/base/io/source.h
devfix/net/inetaddress.cpp
devfix/net/inetaddress.h
devfix/net/netbuilder.cpp
devfix/net/netbuilder.h
devfix/net/serversocket.h
devfix/net/socket.h
devfix/net/socketexception.h
devfix/net/lnx/lnx_serversocket.cpp
devfix/net/lnx/lnx_serversocket.h
devfix/net/lnx/lnx_socket.cpp
devfix/net/lnx/lnx_socket.h
devfix/net/test_inetaddress.cpp
double / host/toot/toot/one

10 File Index

Namespace Documentation

6.1 devfix Namespace Reference

Namespaces

- base
- net

6.2 devfix::base Namespace Reference

Namespaces

error

Namespace for general errors like timeouts or io failures.

ic

Namespace for io tool, for instance streams.

Typedefs

```
    template < class T >
        using up = std::unique_ptr < T >
    template < class T >
        using sp = std::shared_ptr < T >
```

6.2.1 Typedef Documentation

6.2.1.1 sp

```
template<class T >
using devfix::base::sp = typedef std::shared_ptr<T>
```

6.2.1.2 up

```
template<class T >
using devfix::base::up = typedef std::unique_ptr<T>
```

6.3 devfix::base::error Namespace Reference

Namespace for general errors like timeouts or io failures.

Classes

· struct baseexception

Abstract error base class.

· struct interruptedexception

Thrown when an operation is interrupted, either before or during the activity.

· struct ioexception

Signals that an I/O error of some sort has occurred.

· struct timeoutexception

Exception thrown when a blocking operation times out.

6.3.1 Detailed Description

Namespace for general errors like timeouts or io failures.

More specific exceptions are in the namespace of their corresponding functionality.

6.4 devfix::base::io Namespace Reference

Namespace for io tool, for instance streams.

Classes

struct inputstream

Superclass of all classes representing an input stream of bytes.

· struct outputstream

Superclass of all classes representing an output stream of bytes.

- · struct sink
- · struct source

Typedefs

- typedef std::function< void()> close_t
- typedef std::function< bool()> is_closed_t
- typedef std::function < void(void *, std::size t) > read t
- typedef std::function< void(std::size_t)> skip_t
- typedef std::function< std::size_t()> available_t
- typedef std::function< void(const void *, std::size_t)> write_t
- typedef std::function< void()> flush_t

Variables

```
    const close_t DEFAULT_CLOSE = []() {}
    const is_closed_t DEFAULT_IS_CLOSED = []() { return false; }
```

6.4.1 Detailed Description

Namespace for io tool, for instance streams.

6.4.2 Typedef Documentation

```
6.4.2.1 available_t

typedef std::function<std::size_t()> devfix::base::io::available_t

6.4.2.2 close_t

typedef std::function<void()> devfix::base::io::close_t
```

6.4.2.3 flush_t

typedef std::function<void()> devfix::base::io::flush_t

6.4.2.4 is_closed_t

typedef std::function<bool()> devfix::base::io::is_closed_t

6.4.2.5 read_t

typedef std::function<void(void *, std::size_t)> devfix::base::io::read_t

6.4.2.6 skip_t

typedef std::function<void(std::size_t)> devfix::base::io::skip_t

6.4.2.7 write_t

typedef std::function<void(const void *, std::size_t)> devfix::base::io::write_t

6.4.3 Variable Documentation

6.4.3.1 DEFAULT_CLOSE

```
const close_t devfix::base::io::DEFAULT_CLOSE = []() {}
```

6.4.3.2 DEFAULT_IS_CLOSED

```
const is_closed_t devfix::base::io::DEFAULT_IS_CLOSED = []() { return false; }
```

6.5 devfix::net Namespace Reference

Classes

- struct inetaddress
- struct netbuilder
- struct serversocket
- struct socket
- struct socketexception

Thrown to indicate that there is an error creating or accessing a Socket.

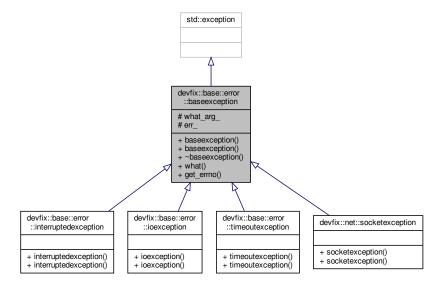
Class Documentation

7.1 devfix::base::error::baseexception Struct Reference

Abstract error base class.

#include <baseexception.h>

Inheritance diagram for devfix::base::error::baseexception:



Public Member Functions

- baseexception ()=delete
- baseexception (std::string what_arg, int err=-1)
- \sim baseexception () override=default
- const char * what () const noexcept final
- int get_errno () const noexcept

16 Class Documentation

Protected Attributes

```
std::string what_arg_
failure descriptionint err_
```

7.1.1 Detailed Description

Abstract error base class.

This class is the parent of more specific exceptions and cannot be thrown directly.

7.1.2 Constructor & Destructor Documentation

```
7.1.2.1 baseexception() [1/2]
devfix::base::error::baseexception::baseexception ( ) [delete]
```

Delete simple constructor, always enforce a failure description.

```
7.1.2.2 baseexception() [2/2]
```

Constructs the error object with what_arg as explanatory std::string that can be accessed through what().

Parameters

```
what_arg failure description
```

7.1.2.3 \sim baseexception()

```
{\tt devfix::base::error::base exception::} {\tt \sim} {\tt base exception} \ ( \ ) \quad {\tt [override], [default]}
```

Virtual constructor to make class abstract. Here is the caller graph for this function:



7.1.3 Member Function Documentation

7.1.3.1 get_errno()

```
int devfix::base::error::baseexception::get_errno ( ) const [inline], [noexcept]
```

7.1.3.2 what()

```
const char* devfix::base::error::baseexception::what ( ) const [inline], [final], [noexcept]
```

Returns a C-style character string describing the general cause of the current error.

Returns

explanatory string

7.1.4 Member Data Documentation

7.1.4.1 err

int devfix::base::error::baseexception::err_ [protected]

7.1.4.2 what_arg_

std::string devfix::base::error::baseexception::what_arg_ [protected]

failure description

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

· devfix/base/error/baseexception.h

18 Class Documentation

7.2 devfix::net::inetaddress Struct Reference

```
#include <inetaddress.h>
```

Public Types

- enum family_t : char { family_t::UNSUPPORTED = 0, family_t::IPV4 = 1 }
- typedef std::uint32_t address_t
- typedef std::uint16_t port_t

Public Member Functions

- inetaddress ()=default
- inetaddress (const std::string &host, port_t port, family_t family=family_t::IPV4)
- std::string get_host () const noexcept
- address_t get_address () const
- port_t get_port () const
- · family_t get_family () const

7.2.1 Member Typedef Documentation

```
7.2.1.1 address_t
```

```
typedef std::uint32_t devfix::net::inetaddress::address_t
```

7.2.1.2 port_t

```
typedef std::uint16_t devfix::net::inetaddress::port_t
```

7.2.2 Member Enumeration Documentation

7.2.2.1 family_t

```
enum devfix::net::inetaddress::family_t : char [strong]
```

Enumerator

UNSUPPORTED
IPV4

7.2.3 Constructor & Destructor Documentation

7.2.3.1 inetaddress() [1/2] devfix::net::inetaddress::inetaddress () [default]

Here is the caller graph for this function:



7.2.3.2 inetaddress() [2/2]

7.2.4 Member Function Documentation

7.2.4.1 get_address()

```
inetaddress::address_t devfix::net::inetaddress::get_address ( ) const
```

Here is the caller graph for this function:



20 Class Documentation

7.2.4.2 get_family()

inetaddress::family_t devfix::net::inetaddress::get_family () const

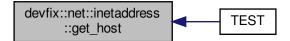
Here is the caller graph for this function:



7.2.4.3 get_host()

std::string devfix::net::inetaddress::get_host () const [noexcept]

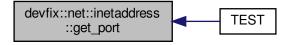
Here is the caller graph for this function:



7.2.4.4 get_port()

inetaddress::port_t devfix::net::inetaddress::get_port () const

Here is the caller graph for this function:



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

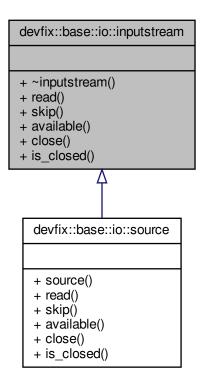
- · devfix/net/inetaddress.h
- devfix/net/inetaddress.cpp

7.3 devfix::base::io::inputstream Struct Reference

Superclass of all classes representing an input stream of bytes.

#include <inputstream.h>

Inheritance diagram for devfix::base::io::inputstream:



Public Member Functions

virtual ∼inputstream ()=default

Default virtual destructor.

virtual void read (void *buf, std::size_t len)=0

Reads bytes from the input stream and stores them into the buffer.

virtual void skip (std::size_t n)=0

Skips over and discards n bytes of data from this input stream.

virtual std::size_t available ()=0

Returns an estimate of the number of bytes that can be read (or skipped over) from this input stream without blocking by the next invocation of a method for this input stream.

• virtual void close ()=0

Closes this input stream and releases any system resources associated with the stream.

• virtual bool is_closed ()=0

Returns if the inputstream is closed or available for further calls of input operations.

22 Class Documentation

7.3.1 Detailed Description

Superclass of all classes representing an input stream of bytes.

Applications that need to define a subclass of InputStream must always provide a method that returns the next byte of input.

7.3.2 Constructor & Destructor Documentation

7.3.2.1 \sim inputstream()

```
virtual devfix::base::io::inputstream::~inputstream ( ) [virtual], [default]
```

Default virtual destructor.

Needed for correct deletion of instances of a derived classes through a pointer to base class.

7.3.3 Member Function Documentation

7.3.3.1 available()

```
virtual std::size_t devfix::base::io::inputstream::available ( ) [pure virtual]
```

Returns an estimate of the number of bytes that can be read (or skipped over) from this input stream without blocking by the next invocation of a method for this input stream.

A single read or skip of this many bytes will not block, but may read or skip fewer bytes.

Note that while some implementations of *inputstream* will return the total number of bytes in the stream, many will not. It is never correct to use the return value of this method to allocate a buffer intended to hold all data in this stream.

A subclass' implementation of this method may choose to throw an IOException if this input stream has been closed by invoking the close() method.

This method should be overridden by subclasses.

Returns

an estimate of the number of bytes that can be read (or skipped over) from this input stream without blocking or 0 when it reaches the end of the input stream.

Implemented in devfix::base::io::source.

7.3.3.2 close()

```
virtual void devfix::base::io::inputstream::close ( ) [pure virtual]
```

Closes this input stream and releases any system resources associated with the stream.

A closed stream cannot perform input operations and cannot be reopened.

Implemented in devfix::base::io::source.

7.3.3.3 is_closed()

```
virtual bool devfix::base::io::inputstream::is_closed ( ) [pure virtual]
```

Returns if the *inputstream* is closed or available for further calls of input operations.

Returns

true if the inputstream got previously closed.

Implemented in devfix::base::io::source.

7.3.3.4 read()

Reads bytes from the input stream and stores them into the buffer.

This method blocks until input data is available, end of file is detected, or another error is thrown.

If len is zero, then no bytes are read. If no byte is available because the stream is at end of file, an error is thrown.

The first byte read is stored into element b[0], the next one into b[1], and so on. If no error was thrown, the number of bytes read is always equal to len.

Subclasses are encouraged to provide a more efficient implementation of this method.

Parameters

buf	the buffer into which the data is read.
len	the maximum number of bytes to read.

Implemented in devfix::base::io::source.

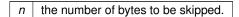
24 Class Documentation

7.3.3.5 skip()

Skips over and discards n bytes of data from this input stream.

The skip method may, for a variety of reasons, end up skipping over some smaller number of bytes, possibly 0. This may result from any of a number of conditions; reaching end of file before n bytes have been skipped is only one possibility.

Parameters



Implemented in devfix::base::io::source.

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

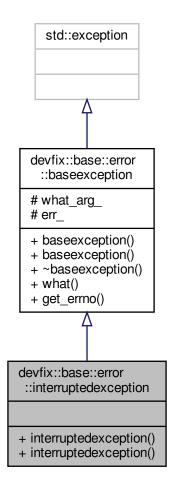
• devfix/base/io/inputstream.h

7.4 devfix::base::error::interruptedexception Struct Reference

Thrown when an operation is interrupted, either before or during the activity.

#include <interruptedexception.h>

Inheritance diagram for devfix::base::error::interruptedexception:



Public Member Functions

- interruptedexception (const std::string &what_arg, int err=-1)
- interruptedexception (const char *what_arg, int err=-1)

Additional Inherited Members

7.4.1 Detailed Description

Thrown when an operation is interrupted, either before or during the activity.

Occasionally a method may wish to test whether the current operation has been interrupted, and if so, to immediately throw this error.

26 Class Documentation

7.4.2 Constructor & Destructor Documentation

7.4.2.1 interrupted exception() [1/2]

Constructs the error object with what_arg as explanatory string that can be accessed through what().

Parameters

what_arg	explanatory std::string
err	c error code (errno)

7.4.2.2 interruptedexception() [2/2]

Constructs the error object with what_arg as explanatory string that can be accessed through what().

Parameters

what_arg	explanatory c-string
err	c error code (errno)

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

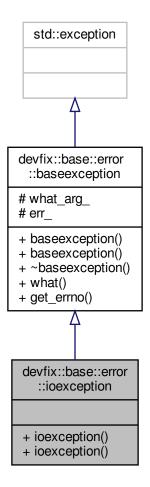
• devfix/base/error/interruptedexception.h

7.5 devfix::base::error::ioexception Struct Reference

Signals that an I/O error of some sort has occurred.

```
#include <ioexception.h>
```

Inheritance diagram for devfix::base::error::ioexception:



Public Member Functions

- ioexception (const std::string &what_arg, int err=-1)
- ioexception (const char *what_arg, int err=-1)

Additional Inherited Members

7.5.1 Detailed Description

Signals that an I/O error of some sort has occurred.

This class is the general class of exceptions produced by failed or interrupted I/O operations.

7.5.2 Constructor & Destructor Documentation

7.5.2.1 ioexception() [1/2]

Constructs the error object with what_arg as explanatory string that can be accessed through what().

Parameters

what_arg	explanatory std::string
err	c error code (errno)

7.5.2.2 ioexception() [2/2]

Constructs the error object with what_arg as explanatory string that can be accessed through what().

Parameters

what_arg	explanatory c-string
err	c error code (errno)

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

· devfix/base/error/ioexception.h

7.6 devfix::net::netbuilder Struct Reference

```
#include <netbuilder.h>
```

Public Member Functions

• netbuilder ()=delete

Static Public Member Functions

- static std::unique_ptr< socket > create_socket (inetaddress adr)
 Creates a socket and connects it to the specified remote internet address. The Socket will also bind() to the local address and port supplied.
- static std::unique_ptr< serversocket > create_serversocket (inetaddress adr, bool reuse_address=false)

7.6.1 Constructor & Destructor Documentation

7.6.1.1 netbuilder()

```
devfix::net::netbuilder::netbuilder ( ) [delete]
```

7.6.2 Member Function Documentation

7.6.2.1 create_serversocket()

Here is the caller graph for this function:



7.6.2.2 create_socket()

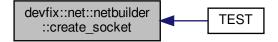
Creates a socket and connects it to the specified remote internet address. The Socket will also bind() to the local address and port supplied.

Parameters

inetaddress	remote address
-------------	----------------

Returns

Here is the caller graph for this function:



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

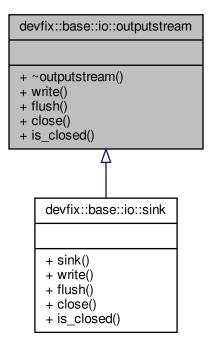
- · devfix/net/netbuilder.h
- devfix/net/netbuilder.cpp

7.7 devfix::base::io::outputstream Struct Reference

Superclass of all classes representing an output stream of bytes.

#include <outputstream.h>

Inheritance diagram for devfix::base::io::outputstream:



Public Member Functions

- virtual ~outputstream ()=default
- virtual void write (const void *buf, std::size t len)=0

Writes len bytes from the specified buffer to this output stream.

• virtual void flush ()=0

Flushes this outputstream and forces any buffered output bytes to be written out.

• virtual void close ()=0

Closes this outputstream and releases any system resources associated with this stream.

virtual bool is closed ()=0

Returns if the outputstream is closed or available for further calls of output operations.

7.7.1 Detailed Description

Superclass of all classes representing an output stream of bytes.

An output stream accepts output bytes and sends them to some sink. Applications that need to define a subclass of OutputStream must always provide a method that writes one byte of output.

7.7.2 Constructor & Destructor Documentation

7.7.2.1 \sim outputstream()

```
virtual devfix::base::io::outputstream::~outputstream ( ) [virtual], [default]
```

7.7.3 Member Function Documentation

7.7.3.1 close()

```
virtual void devfix::base::io::outputstream::close ( ) [pure virtual]
```

Closes this *outputstream* and releases any system resources associated with this stream.

The general contract of close is that it closes the output stream. A closed stream cannot perform output operations and cannot be reopened.

Implemented in devfix::base::io::sink.

7.7.3.2 flush()

```
virtual void devfix::base::io::outputstream::flush ( ) [pure virtual]
```

Flushes this *outputstream* and forces any buffered output bytes to be written out.

The general contract of flush is that calling it is an indication that, if any bytes previously written have been buffered by the implementation of the output stream, such bytes should immediately be written to their intended destination.

If the intended destination of this stream is an abstraction provided by the underlying operating system, for example a file, then flushing the stream guarantees only that bytes previously written to the stream are passed to the operating system for writing; it does not guarantee that they are actually written to a physical device such as a disk drive.

Implemented in devfix::base::io::sink.

7.7.3.3 is_closed()

```
virtual bool devfix::base::io::outputstream::is_closed () [pure virtual]
```

Returns if the *outputstream* is closed or available for further calls of output operations.

Returns

true if the *outputstream* got previously closed.

Implemented in devfix::base::io::sink.

7.7.3.4 write()

Writes len bytes from the specified buffer to this output stream.

Element b[0] is the first byte written and b[len-1] is the last byte written by this operation.

Parameters

buf	the data.
len	the number of bytes to write.

Implemented in devfix::base::io::sink.

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

• devfix/base/io/outputstream.h

7.8 devfix::net::serversocket Struct Reference

```
#include <serversocket.h>
```

Public Member Functions

- virtual ∼serversocket ()=default
- virtual std::unique_ptr< socket > accept ()=0
- virtual const inetaddress & get_address () const noexcept=0
- virtual bool get_reuse_address () const noexcept=0
- virtual void set accept timeout (socket::timeout t timeout)=0
- virtual socket::timeout_t get_accept_timeout () const noexcept=0
- virtual void close ()=0
- virtual bool is_closed () const noexcept=0

7.8.1 Constructor & Destructor Documentation

```
7.8.1.1 ~serversocket()
virtual devfix::net::serversocket::~serversocket ( ) [virtual], [default]
```

7.8.2 Member Function Documentation

```
7.8.2.1 accept()
virtual std::unique_ptr<socket> devfix::net::serversocket::accept ( ) [pure virtual]
7.8.2.2 close()
virtual void devfix::net::serversocket::close ( ) [pure virtual]
```

7.8.2.3 get_accept_timeout()

```
virtual socket::timeout_t devfix::net::serversocket::get_accept_timeout ( ) const [pure virtual],
[noexcept]
```

7.8.2.4 get_address()

```
virtual const inetaddress& devfix::net::serversocket::get_address ( ) const [pure virtual],
[noexcept]
```

7.8.2.5 get_reuse_address()

```
virtual bool devfix::net::serversocket::get_reuse_address ( ) const [pure virtual], [noexcept]
```

7.8.2.6 is_closed()

```
virtual bool devfix::net::serversocket::is_closed ( ) const [pure virtual], [noexcept]
```

7.8.2.7 set_accept_timeout()

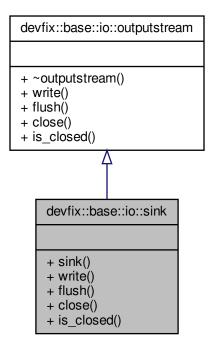
The documentation for this struct was generated from the following file:

• devfix/net/serversocket.h

7.9 devfix::base::io::sink Struct Reference

#include <sink.h>

Inheritance diagram for devfix::base::io::sink:



Public Member Functions

- sink (write_t write, flush_t flush, close_t close=DEFAULT_CLOSE, is_closed_t is_closed=DEFAULT_IS_C ← LOSED)
- void write (const void *buf, std::size_t len)

Writes len bytes from the specified buffer to this output stream.

• void flush ()

Flushes this outputstream and forces any buffered output bytes to be written out.

• void close ()

Closes this outputstream and releases any system resources associated with this stream.

• bool is_closed ()

Returns if the outputstream is closed or available for further calls of output operations.

7.9.1 Constructor & Destructor Documentation

7.9.1.1 sink()

7.9.2 Member Function Documentation

```
7.9.2.1 close()
void devfix::base::io::sink::close ( ) [virtual]
```

Closes this *outputstream* and releases any system resources associated with this stream.

The general contract of close is that it closes the output stream. A closed stream cannot perform output operations and cannot be reopened.

Implements devfix::base::io::outputstream.

```
7.9.2.2 flush()
void devfix::base::io::sink::flush ( ) [virtual]
```

Flushes this *outputstream* and forces any buffered output bytes to be written out.

The general contract of flush is that calling it is an indication that, if any bytes previously written have been buffered by the implementation of the output stream, such bytes should immediately be written to their intended destination.

If the intended destination of this stream is an abstraction provided by the underlying operating system, for example a file, then flushing the stream guarantees only that bytes previously written to the stream are passed to the operating system for writing; it does not guarantee that they are actually written to a physical device such as a disk drive.

Implements devfix::base::io::outputstream.

```
7.9.2.3 is_closed()
```

```
bool devfix::base::io::sink::is_closed ( ) [virtual]
```

Returns if the *outputstream* is closed or available for further calls of output operations.

Returns

true if the outputstream got previously closed.

Implements devfix::base::io::outputstream.

7.9.2.4 write()

Writes len bytes from the specified buffer to this output stream.

Element b[0] is the first byte written and b[len-1] is the last byte written by this operation.

Parameters

buf	the data.
len	the number of bytes to write.

Implements devfix::base::io::outputstream.

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

- · devfix/base/io/sink.h
- devfix/base/io/sink.cpp

7.10 devfix::net::socket Struct Reference

```
#include <socket.h>
```

Public Types

typedef std::uint32_t timeout_t

Public Member Functions

- virtual ∼socket ()=default
- virtual const inetaddress & get_local_address () const noexcept=0
- virtual const inetaddress & get_remote_address () const noexcept=0
- virtual base::io::inputstream & get_inputstream () const noexcept=0
- virtual base::io::outputstream & get_outputstream () const noexcept=0
- virtual void set_interrupted (bool interrupted) noexcept=0
- virtual bool interrupted () const noexcept=0
- virtual void set_timeout (timeout_t timeout) noexcept=0
- virtual timeout_t get_timeout () const noexcept=0

Static Public Attributes

- static constexpr timeout_t DEFAULT_TIMEOUT = 3000 default read timeout in milliseconds
- static constexpr timeout_t DEFAULT_READ_BLOCKING_TIME = 100
 default read timeout until refresh in milliseconds

7.10.1 Member Typedef Documentation

7.10.1.1 timeout_t

typedef std::uint32_t devfix::net::socket::timeout_t

7.10.2 Constructor & Destructor Documentation

```
7.10.2.1 ∼socket()
virtual devfix::net::socket::~socket ( ) [virtual], [default]
7.10.3 Member Function Documentation
7.10.3.1 get_inputstream()
virtual base::io::inputstream& devfix::net::socket::get_inputstream ( ) const [pure virtual],
[noexcept]
7.10.3.2 get_local_address()
virtual const inetaddress@ devfix::net::socket::get_local_address ( ) const [pure virtual],
[noexcept]
7.10.3.3 get_outputstream()
virtual base::io::outputstream& devfix::net::socket::get_outputstream ( ) const [pure virtual],
[noexcept]
7.10.3.4 get_remote_address()
virtual const inetaddress& devfix::net::socket::get_remote_address ( ) const [pure virtual],
[noexcept]
7.10.3.5 get_timeout()
virtual timeout_t devfix::net::socket::get_timeout ( ) const [pure virtual], [noexcept]
```

7.10.3.6 interrupted()

```
virtual bool devfix::net::socket::interrupted ( ) const [pure virtual], [noexcept]
```

Returns

true if the socket is interrupted.

7.10.3.7 set_interrupted()

Set the socket as interrupted.

Parameters

interrupted If set true, any read call returns after the read blocking time expired and throws an error.

7.10.3.8 set_timeout()

7.10.4 Member Data Documentation

7.10.4.1 DEFAULT_READ_BLOCKING_TIME

```
constexpr timeout_t devfix::net::socket::DEFAULT_READ_BLOCKING_TIME = 100 [static]
```

default read timeout until refresh in milliseconds

7.10.4.2 DEFAULT_TIMEOUT

```
constexpr timeout_t devfix::net::socket::DEFAULT_TIMEOUT = 3000 [static]
```

default read timeout in milliseconds

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

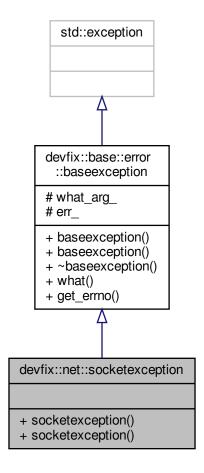
devfix/net/socket.h

7.11 devfix::net::socketexception Struct Reference

Thrown to indicate that there is an error creating or accessing a Socket.

```
#include <socketexception.h>
```

Inheritance diagram for devfix::net::socketexception:



Public Member Functions

- socketexception (const std::string &what_arg, int err=-1)
- socketexception (const char *what_arg, int err=-1)

Additional Inherited Members

7.11.1 Detailed Description

Thrown to indicate that there is an error creating or accessing a Socket.

7.11.2 Constructor & Destructor Documentation

7.11.2.1 socketexception() [1/2]

Constructs the error object with what_arg as explanatory string that can be accessed through what().

Parameters

what_arg	explanatory std::string
err	c error code (errno)

7.11.2.2 socketexception() [2/2]

Constructs the error object with what_arg as explanatory string that can be accessed through what().

Parameters

what_arg	explanatory c-string
err	c error code (errno)

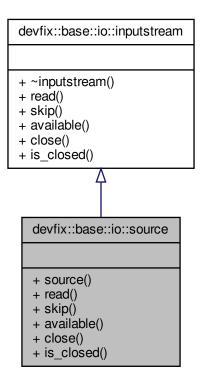
The documentation for this struct was generated from the following file:

• devfix/net/socketexception.h

7.12 devfix::base::io::source Struct Reference

```
#include <source.h>
```

Inheritance diagram for devfix::base::io::source:



Public Member Functions

- source (read_t read, skip_t skip, available_t available, close_t close=DEFAULT_CLOSE, is_closed_t is_
 closed=DEFAULT_IS_CLOSED)
- void read (void *buf, std::size_t len) override

Reads bytes from the input stream and stores them into the buffer.

void skip (std::size_t n) override

Skips over and discards n bytes of data from this input stream.

• std::size_t available () override

Returns an estimate of the number of bytes that can be read (or skipped over) from this input stream without blocking by the next invocation of a method for this input stream.

· void close () override

Closes this input stream and releases any system resources associated with the stream.

• bool is_closed () override

Returns if the inputstream is closed or available for further calls of input operations.

7.12.1 Constructor & Destructor Documentation

7.12.1.1 source()

7.12.2 Member Function Documentation

7.12.2.1 available()

```
std::size_t devfix::base::io::source::available ( ) [override], [virtual]
```

Returns an estimate of the number of bytes that can be read (or skipped over) from this input stream without blocking by the next invocation of a method for this input stream.

A single read or skip of this many bytes will not block, but may read or skip fewer bytes.

Note that while some implementations of *inputstream* will return the total number of bytes in the stream, many will not. It is never correct to use the return value of this method to allocate a buffer intended to hold all data in this stream.

A subclass' implementation of this method may choose to throw an IOException if this input stream has been closed by invoking the close() method.

This method should be overridden by subclasses.

Returns

an estimate of the number of bytes that can be read (or skipped over) from this input stream without blocking or 0 when it reaches the end of the input stream.

Implements devfix::base::io::inputstream.

7.12.2.2 close()

```
void devfix::base::io::source::close ( ) [override], [virtual]
```

Closes this input stream and releases any system resources associated with the stream.

A closed stream cannot perform input operations and cannot be reopened.

Implements devfix::base::io::inputstream.

7.12.2.3 is_closed()

```
bool devfix::base::io::source::is_closed ( ) [override], [virtual]
```

Returns if the *inputstream* is closed or available for further calls of input operations.

Returns

true if the inputstream got previously closed.

Implements devfix::base::io::inputstream.

7.12.2.4 read()

Reads bytes from the input stream and stores them into the buffer.

This method blocks until input data is available, end of file is detected, or another error is thrown.

If len is zero, then no bytes are read. If no byte is available because the stream is at end of file, an error is thrown.

The first byte read is stored into element b[0], the next one into b[1], and so on. If no error was thrown, the number of bytes read is always equal to len.

Subclasses are encouraged to provide a more efficient implementation of this method.

Parameters

buf	the buffer into which the data is read.
len	the maximum number of bytes to read.

Implements devfix::base::io::inputstream.

7.12.2.5 skip()

Skips over and discards n bytes of data from this input stream.

The skip method may, for a variety of reasons, end up skipping over some smaller number of bytes, possibly 0. This may result from any of a number of conditions; reaching end of file before n bytes have been skipped is only one possibility.

Parameters

n the number of bytes to be skipped.

Implements devfix::base::io::inputstream.

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

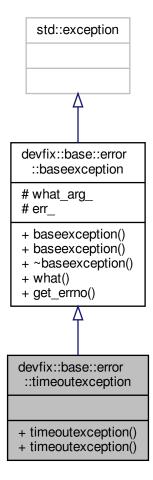
- · devfix/base/io/source.h
- devfix/base/io/source.cpp

7.13 devfix::base::error::timeoutexception Struct Reference

Exception thrown when a blocking operation times out.

#include <timeoutexception.h>

Inheritance diagram for devfix::base::error::timeoutexception:



Public Member Functions

- timeoutexception (const std::string &what_arg, int err=-1)
- timeoutexception (const char *what_arg, int err=-1)

Additional Inherited Members

7.13.1 Detailed Description

Exception thrown when a blocking operation times out.

Blocking operations for which a timeout is specified need a means to indicate that the timeout has occurred. For many such operations it is possible to return a value that indicates timeout; when that is not possible or desirable then TimeoutException should be declared and thrown.

7.13.2 Constructor & Destructor Documentation

7.13.2.1 timeoutexception() [1/2]

```
devfix::base::error::timeoutexception::timeoutexception ( const std::string & what_arg, int err = -1) [inline], [explicit]
```

Constructs the error object with what_arg as explanatory string that can be accessed through what().

Parameters

what_arg	explanatory std::string
err	c error code (errno)

7.13.2.2 timeoutexception() [2/2]

Constructs the error object with what_arg as explanatory string that can be accessed through what().

Parameters

what_arg	explanatory c-string
err	c error code (errno)

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

• devfix/base/error/timeoutexception.h

Chapter 8

File Documentation

8.1 cmake-build-debug/CMakeFiles/3.15.3/CompilerIdCXX/CMakeCXXCompilerId.cpp File Reference

Macros

- #define COMPILER ID ""
- #define STRINGIFY_HELPER(X) #X
- #define STRINGIFY(X) STRINGIFY HELPER(X)
- #define PLATFORM_ID
- #define ARCHITECTURE ID
- #define DEC(n)
- #define HEX(n)
- #define CXX_STD __cplusplus

Functions

• int main (int argc, char *argv[])

Variables

```
• char const * info_compiler = "INFO" ":" "compiler[" COMPILER_ID "]"
```

- char const * info_platform = "INFO" ":" "platform[" PLATFORM_ID "]"
- char const * info_arch = "INFO" ":" "arch[" ARCHITECTURE_ID "]"
- const char * info_language_dialect_default

8.1.1 Macro Definition Documentation

8.1.1.1 ARCHITECTURE_ID

#define ARCHITECTURE_ID

50 File Documentation

8.1.1.2 COMPILER_ID

```
#define COMPILER_ID ""
```

8.1.1.3 CXX_STD

```
#define CXX_STD __cplusplus
```

8.1.1.4 DEC

```
#define DEC( \ensuremath{n} )
```

Value:

8.1.1.5 HEX

```
#define HEX(
```

Value:

```
('0' + ((n)>>28 & 0xF)), \
('0' + ((n)>>24 & 0xF)), \
('0' + ((n)>>20 & 0xF)), \
('0' + ((n)>>16 & 0xF)), \
('0' + ((n)>>12 & 0xF)), \
('0' + ((n)>>8 & 0xF)), \
('0' + ((n)>>4 & 0xF)), \
('0' + ((n)>>4 & 0xF)), \
('0' + ((n) & 0xF))
```

8.1.1.6 PLATFORM_ID

#define PLATFORM_ID

8.1.1.7 STRINGIFY

8.1.1.8 STRINGIFY_HELPER

```
#define STRINGIFY_HELPER( \it X ) #X
```

8.1.2 Function Documentation

8.1.2.1 main()

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

8.1.3 Variable Documentation

8.1.3.1 info_arch

```
char const* info_arch = "INFO" ":" "arch[" ARCHITECTURE_ID "]"
```

8.1.3.2 info_compiler

```
char const* info_compiler = "INFO" ":" "compiler[" COMPILER_ID "]"
```

52 File Documentation

8.1.3.3 info_language_dialect_default

```
const char* info_language_dialect_default
```

Initial value:

```
= "INFO" ":" "dialect_default["
```

"98**"**

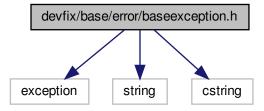
8.1.3.4 info_platform

```
char const* info_platform = "INFO" ":" "platform[" PLATFORM_ID "]"
```

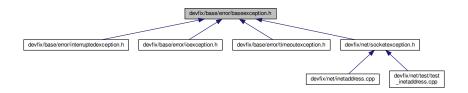
8.2 devfix/base/error/baseexception.h File Reference

```
#include <exception>
#include <string>
#include <cstring>
```

Include dependency graph for baseexception.h:



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



Classes

• struct devfix::base::error::baseexception

Abstract error base class.

Namespaces

· devfix::base::error

Namespace for general errors like timeouts or io failures.

Macros

- #define exception_guard_m(err, exception_class, message)
- #define exception_guard(err, exception_class) exception_guard_m(err, exception_class, std::strerror(errno))

8.2.1 Macro Definition Documentation

8.2.1.1 exception_guard

8.2.1.2 exception_guard_m

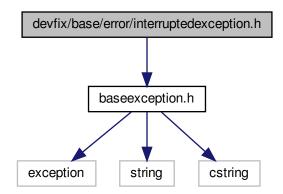
Value:

```
if (err) \
    throw exception_class(message + std::string(" @ ") + SOURCE_LINE, errno)
```

54 File Documentation

8.3 devfix/base/error/interruptedexception.h File Reference

#include "baseexception.h"
Include dependency graph for interrupted exception.h:



Classes

• struct devfix::base::error::interruptedexception

Thrown when an operation is interrupted, either before or during the activity.

Namespaces

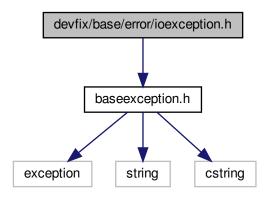
• devfix::base::error

Namespace for general errors like timeouts or io failures.

8.4 devfix/base/error/ioexception.h File Reference

#include "baseexception.h"

Include dependency graph for ioexception.h:



Classes

struct devfix::base::error::ioexception

Signals that an I/O error of some sort has occurred.

Namespaces

devfix::base::error

Namespace for general errors like timeouts or io failures.

8.5 devfix/base/error/namespace.h File Reference

Namespaces

devfix::base::error

Namespace for general errors like timeouts or io failures.

8.6 devfix/base/io/namespace.h File Reference

Namespaces

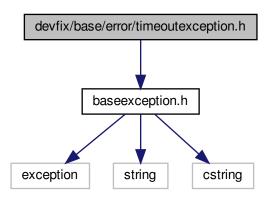
· devfix::base::io

Namespace for io tool, for instance streams.

56 File Documentation

8.7 devfix/base/error/timeoutexception.h File Reference

#include "baseexception.h"
Include dependency graph for timeoutexception.h:



Classes

• struct devfix::base::error::timeoutexception

Exception thrown when a blocking operation times out.

Namespaces

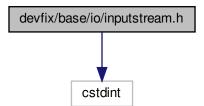
devfix::base::error

Namespace for general errors like timeouts or io failures.

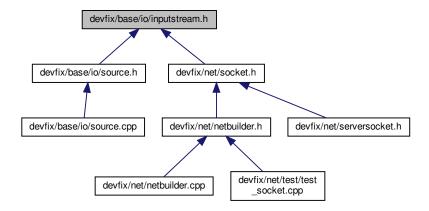
8.8 devfix/base/io/inputstream.h File Reference

#include <cstdint>

Include dependency graph for inputstream.h:



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



Classes

• struct devfix::base::io::inputstream

Superclass of all classes representing an input stream of bytes.

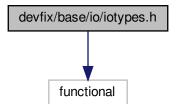
Namespaces

· devfix::base::io

Namespace for io tool, for instance streams.

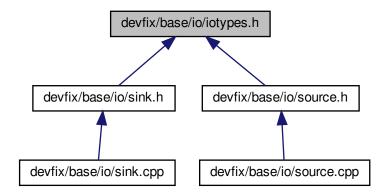
8.9 devfix/base/io/iotypes.h File Reference

#include <functional>
Include dependency graph for iotypes.h:



58 File Documentation

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



Namespaces

· devfix::base::io

Namespace for io tool, for instance streams.

Typedefs

- typedef std::function< void()> devfix::base::io::close_t
- typedef std::function< bool()> devfix::base::io::is_closed_t
- typedef std::function< void(void *, std::size_t)> devfix::base::io::read_t
- typedef std::function< void(std::size_t)> devfix::base::io::skip_t
- typedef std::function< std::size_t()> devfix::base::io::available_t
- typedef std::function< void(const void *, std::size_t)> devfix::base::io::write_t
- typedef std::function< void()> devfix::base::io::flush_t

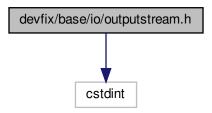
Variables

- const close_t devfix::base::io::DEFAULT_CLOSE = []() {}
- const is_closed_t devfix::base::io::DEFAULT_IS_CLOSED = []() { return false; }

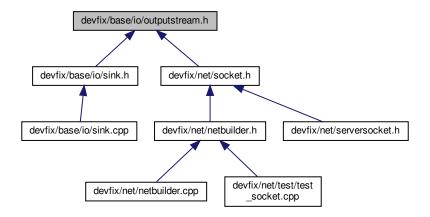
8.10 devfix/base/io/outputstream.h File Reference

#include <cstdint>

Include dependency graph for outputstream.h:



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



Classes

• struct devfix::base::io::outputstream

Superclass of all classes representing an output stream of bytes.

Namespaces

· devfix::base::io

Namespace for io tool, for instance streams.

60 File Documentation

8.11 devfix/base/io/sink.cpp File Reference

```
#include "sink.h"
#include <utility>
Include dependency graph for sink.cpp:
```

devfix/base/io/sink.cpp
sink.h utility
outputstream.h iotypes.h

functional

cstdint

Namespaces

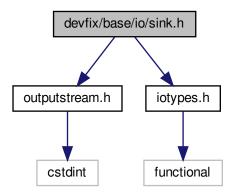
· devfix::base::io

Namespace for io tool, for instance streams.

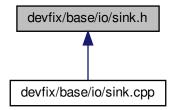
8.12 devfix/base/io/sink.h File Reference

```
#include "outputstream.h"
#include "iotypes.h"
```

Include dependency graph for sink.h:



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



Classes

• struct devfix::base::io::sink

Namespaces

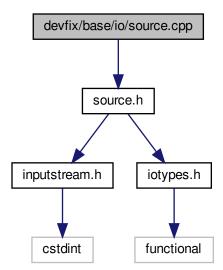
• devfix::base::io

Namespace for io tool, for instance streams.

File Documentation

8.13 devfix/base/io/source.cpp File Reference

#include "source.h"
Include dependency graph for source.cpp:



Namespaces

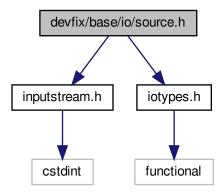
• devfix::base::io

Namespace for io tool, for instance streams.

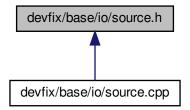
8.14 devfix/base/io/source.h File Reference

```
#include "inputstream.h"
#include "iotypes.h"
```

Include dependency graph for source.h:



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



Classes

• struct devfix::base::io::source

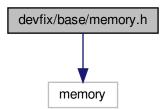
Namespaces

• devfix::base::io

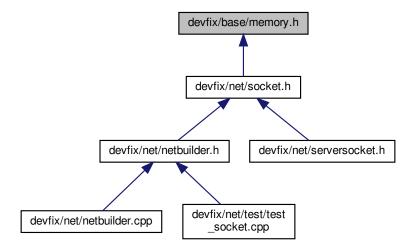
Namespace for io tool, for instance streams.

8.15 devfix/base/memory.h File Reference

#include <memory>
Include dependency graph for memory.h:



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



Namespaces

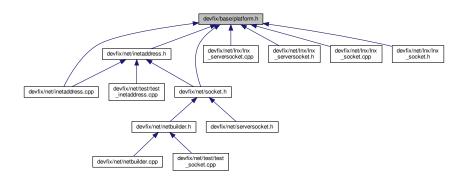
• devfix::base

Typedefs

- template < class T >
 using devfix::base::up = std::unique_ptr < T >
- template < class T >
 using devfix::base::sp = std::shared_ptr < T >

8.16 devfix/base/platform.h File Reference

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



Macros

- #define PLATFORM_LINUX 0
- #define PLATFORM_UNSUPPORTED static_assert (false, "Platform not supported")
- #define __FILENAME__ &__FILE__[0]
- #define SOURCE_LINE std::string(__FILENAME__) + ":" + std::to_string(__LINE__) + ": in \"" + std
 ::string(&__FUNCTION__[0]) + "\""

8.16.1 Macro Definition Documentation

```
8.16.1.1 __FILENAME__
#define __FILENAME__ &__FILE__[0]
```

8.16.1.2 PLATFORM_LINUX

#define PLATFORM_LINUX 0

8.16.1.3 PLATFORM_UNSUPPORTED

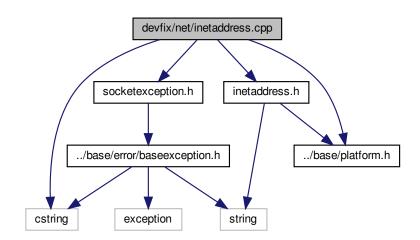
#define PLATFORM_UNSUPPORTED static_assert (false, "Platform not supported")

8.16.1.4 SOURCE_LINE

```
#define SOURCE_LINE std::string(__FILENAME__) + ":" + std::to_string(__LINE__) + ": in \"" +
std::string(&__FUNCTION__[0]) + "\""
```

8.17 devfix/net/inetaddress.cpp File Reference

```
#include <cstring>
#include "../base/platform.h"
#include "inetaddress.h"
#include "socketexception.h"
Include dependency graph for inetaddress.cpp:
```



Namespaces

· devfix::net

Variables

• PLATFORM_UNSUPPORTED

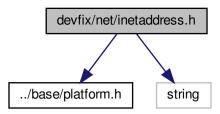
8.17.1 Variable Documentation

8.17.1.1 PLATFORM_UNSUPPORTED

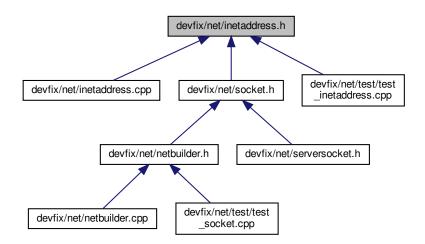
PLATFORM_UNSUPPORTED

8.18 devfix/net/inetaddress.h File Reference

#include "../base/platform.h"
#include <string>
Include dependency graph for inetaddress.h:



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



Classes

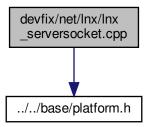
• struct devfix::net::inetaddress

Namespaces

· devfix::net

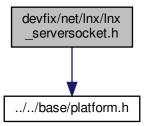
8.19 devfix/net/lnx/lnx_serversocket.cpp File Reference

#include "../../base/platform.h"
Include dependency graph for Inx_serversocket.cpp:



8.20 devfix/net/lnx/lnx_serversocket.h File Reference

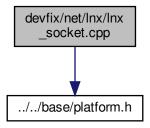
#include "../../base/platform.h"
Include dependency graph for Inx_serversocket.h:



8.21 devfix/net/lnx/lnx_socket.cpp File Reference

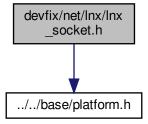
#include "../../base/platform.h"

Include dependency graph for Inx_socket.cpp:



8.22 devfix/net/lnx/lnx_socket.h File Reference

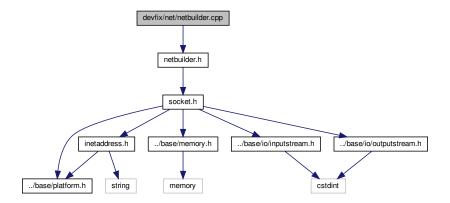
#include "../../base/platform.h"
Include dependency graph for Inx_socket.h:



8.23 devfix/net/netbuilder.cpp File Reference

#include "netbuilder.h"

Include dependency graph for netbuilder.cpp:

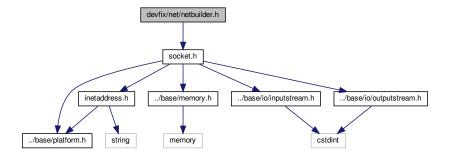


Namespaces

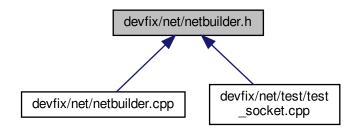
• devfix::net

8.24 devfix/net/netbuilder.h File Reference

#include "socket.h"
Include dependency graph for netbuilder.h:



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



Classes

• struct devfix::net::netbuilder

Namespaces

• devfix::net

Variables

• PLATFORM_UNSUPPORTED

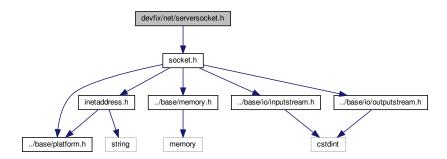
8.24.1 Variable Documentation

8.24.1.1 PLATFORM_UNSUPPORTED

PLATFORM_UNSUPPORTED

8.25 devfix/net/serversocket.h File Reference

#include "socket.h"
Include dependency graph for serversocket.h:



Classes

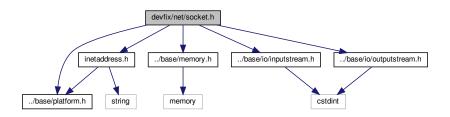
· struct devfix::net::serversocket

Namespaces

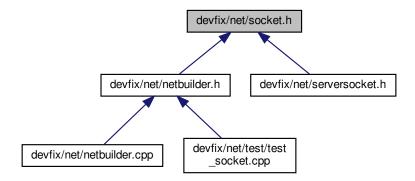
devfix::net

8.26 devfix/net/socket.h File Reference

```
#include "inetaddress.h"
#include "../base/memory.h"
#include "../base/platform.h"
#include "../base/io/inputstream.h"
#include "../base/io/outputstream.h"
Include dependency graph for socket.h:
```



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



Classes

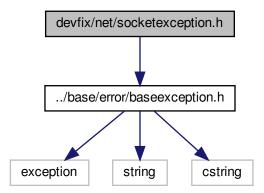
• struct devfix::net::socket

Namespaces

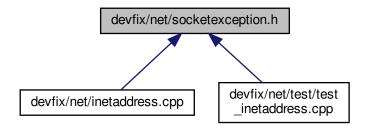
devfix::net

8.27 devfix/net/socketexception.h File Reference

#include "../base/error/baseexception.h"
Include dependency graph for socketexception.h:



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



Classes

• struct devfix::net::socketexception

Thrown to indicate that there is an error creating or accessing a Socket.

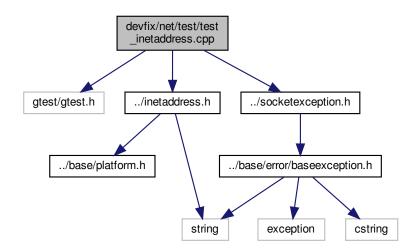
Namespaces

· devfix::net

8.28 devfix/net/test/test_inetaddress.cpp File Reference

```
#include <gtest/gtest.h>
#include "../inetaddress.h"
#include "../socketexception.h"
```

Include dependency graph for test_inetaddress.cpp:



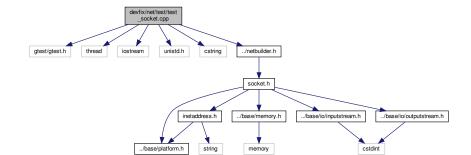
Functions

TEST (Inetaddress, CreateByHost)

8.28.1 Function Documentation

8.29 devfix/net/test/test_socket.cpp File Reference

```
#include <gtest/gtest.h>
#include <thread>
#include <iostream>
#include <unistd.h>
#include <cstring>
#include "../netbuilder.h"
Include dependency graph for test_socket.cpp:
```



Functions

- TEST (Socket, Address)
- TEST (Socket, IO)

Variables

- constexpr inetaddress::port_t TEST_PORT = 30000
- constexpr long TEST_LONG = 1000000
- constexpr float TEST_FLOAT = 3.1415f
- constexpr double TEST_DOUBLE = 1.4142
- constexpr std::array< float, 4 > TEST_ARRAY = {1.0, 1.1, 1.2, 1.3}

8.29.1 Function Documentation

constexpr long TEST_LONG = 1000000

```
8.29.1.1 TEST() [1/2]
TEST (
            Socket ,
            Address )
8.29.1.2 TEST() [2/2]
TEST (
            Socket ,
            IO )
8.29.2 Variable Documentation
8.29.2.1 TEST_ARRAY
constexpr std::array<float, 4> TEST_ARRAY = {1.0, 1.1, 1.2, 1.3}
8.29.2.2 TEST_DOUBLE
constexpr double TEST_DOUBLE = 1.4142
8.29.2.3 TEST_FLOAT
constexpr float TEST_FLOAT = 3.1415f
8.29.2.4 TEST_LONG
```

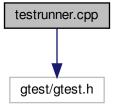
8.29.2.5 TEST_PORT

```
constexpr inetaddress::port_t TEST_PORT = 30000
```

8.30 README.md File Reference

8.31 testrunner.cpp File Reference

```
#include <gtest/gtest.h>
Include dependency graph for testrunner.cpp:
```



Functions

• int main (int argc, char **argv)

8.31.1 Function Documentation

```
8.31.1.1 main()
```

```
int main ( \label{eq:int_argc} \text{int } \textit{argc,} \label{eq:char_argv} \text{char } ** \textit{argv} \text{)}
```

Index

FILENAME	devfix::base::io::inputstream, 22
platform.h, 65	devfix::base::io::outputstream, 31
\sim baseexception	devfix::base::io::sink, 36
devfix::base::error::baseexception, 16	devfix::base::io::source, 43
~inputstream	devfix::net::serversocket, 33
devfix::base::io::inputstream, 22	close_t
~outputstream	devfix::base::io, 13
devfix::base::io::outputstream, 31	cmake-build-debug/CMakeFiles/3.15.3/CompilerIdCX
~serversocket	X/CMakeCXXCompilerId.cpp, 49
devfix::net::serversocket, 33	create_serversocket
~socket	devfix::net::netbuilder, 29
devfix::net::socket, 38	create socket
	devfix::net::netbuilder, 29
ARCHITECTURE ID	,
CMakeCXXCompilerId.cpp, 49	DEFAULT_CLOSE
accept	devfix::base::io, 14
devfix::net::serversocket, 33	DEFAULT_IS_CLOSED
address_t	devfix::base::io, 14
devfix::net::inetaddress, 18	DEFAULT_READ_BLOCKING_TIME
available	devfix::net::socket, 39
devfix::base::io::inputstream, 22	DEFAULT TIMEOUT
devfix::base::io::source, 43	devfix::net::socket, 39
available_t	DEC
	CMakeCXXCompilerId.cpp, 50
devfix::base::io, 13	devfix, 11
bassayaantian	devfix/base/error/baseexception.h, 52
baseexception devfix::base::error::baseexception, 16	devfix/base/error/interruptedexception.h, 54
•	devfix/base/error/ioexception.h, 54
baseexception.h	•
exception_guard, 53	devfix/base/error/namespace.h, 55
exception_guard_m, 53	devfix/base/error/timeoutexception.h, 56
CMakaCVVCampilarld ann	devfix/base/io/inputstream.h, 56
CMakeCXXCompilerId.cpp	devfix/base/io/iotypes.h, 57
ARCHITECTURE_ID, 49	devfix/base/io/namespace.h, 55
COMPILER_ID, 49	devfix/base/io/outputstream.h, 59
CXX_STD, 50	devfix/base/io/sink.cpp, 60
DEC, 50	devfix/base/io/sink.h, 60
HEX, 50	devfix/base/io/source.cpp, 62
info_arch, 51	devfix/base/io/source.h, 62
info_compiler, 51	devfix/base/memory.h, 64
info_language_dialect_default, 51	devfix/base/platform.h, 65
info_platform, 52	devfix/net/inetaddress.cpp, 66
main, 51	devfix/net/inetaddress.h, 67
PLATFORM_ID, 50	devfix/net/lnx/lnx_serversocket.cpp, 68
STRINGIFY_HELPER, 51	devfix/net/lnx/lnx_serversocket.h, 68
STRINGIFY, 50	devfix/net/lnx/lnx_socket.cpp, 68
COMPILER_ID	devfix/net/lnx/lnx_socket.h, 69
CMakeCXXCompilerId.cpp, 49	devfix/net/netbuilder.cpp, 69
CXX_STD	devfix/net/netbuilder.h, 70
CMakeCXXCompilerId.cpp, 50	devfix/net/serversocket.h, 72
close	devfix/net/socket.h, 72

80 INDEX

devfix/net/socketexception.h, 73	address_t, 18
devfix/net/test/test_inetaddress.cpp, 74	family_t, 18
devfix/net/test/test_socket.cpp, 75	get_address, 19
devfix::base, 11	get_family, 19
sp, 11	get_host, 20
up, 11	get_port, 20
devfix::base::error, 12	inetaddress, 19
devfix::base::error::baseexception, 15	port_t, 18
~baseexception, 16	devfix::net::netbuilder, 28
baseexception, 16	create serversocket, 29
err_, 17	create socket, 29
get_errno, 17	netbuilder, 29
what, 17	devfix::net::serversocket, 33
	~serversocket, 33
what_arg_, 17	accept, 33
devfix::base::error::interruptedexception, 24	•
interruptedexception, 26	close, 33
devfix::base::error::ioexception, 26	get_accept_timeout, 33
ioexception, 27, 28	get_address, 33
devfix::base::error::timeoutexception, 45	get_reuse_address, 34
timeoutexception, 46	is_closed, 34
devfix::base::io, 12	set_accept_timeout, 34
available_t, 13	devfix::net::socket, 37
close_t, 13	\sim socket, 38
DEFAULT CLOSE, 14	DEFAULT_READ_BLOCKING_TIME, 39
DEFAULT_IS_CLOSED, 14	DEFAULT_TIMEOUT, 39
flush_t, 13	get_inputstream, 38
is_closed_t, 13	get_local_address, 38
read_t, 13	get_outputstream, 38
skip_t, 13	get_remote_address, 38
write_t, 14	get_timeout, 38
	interrupted, 38
devfix::base::io::inputstream, 21	set_interrupted, 39
∼inputstream, 22	set_timeout, 39
available, 22	timeout_t, 37
close, 22	devfix::net::socketexception, 40
is_closed, 23	socketexception, 41
read, 23	Source Acoption, Th
skip, 23	err_
devfix::base::io::outputstream, 30	devfix::base::error::baseexception, 17
\sim outputstream, 31	exception guard
close, 31	baseexception.h, 53
flush, 31	exception_guard_m
is_closed, 32	baseexception.h, 53
write, 32	baseexception.n, 55
devfix::base::io::sink, 34	family_t
close, 36	devfix::net::inetaddress, 18
flush, 36	
is_closed, 36	flush
sink, 35	devfix::base::io::outputstream, 31
write, 36	devfix::base::io::sink, 36
devfix::base::io::source, 41	flush_t
	devfix::base::io, 13
available, 43	
close, 43	get_accept_timeout
is_closed, 43	devfix::net::serversocket, 33
read, 44	get_address
skip, 44	devfix::net::inetaddress, 19
source, 42	devfix::net::serversocket, 33
devfix::net, 14	get_errno
devfix::net::inetaddress, 18	devfix::base::error::baseexception, 17

INDEX 81

get_family	CMakeCXXCompilerId.cpp, 50
devfix::net::inetaddress, 19	PLATFORM_LINUX
get_host	platform.h, 65
devfix::net::inetaddress, 20	PLATFORM UNSUPPORTED
get_inputstream	inetaddress.cpp, 66
devfix::net::socket, 38	netbuilder.h, 71
get_local_address	platform.h, 65
devfix::net::socket, 38	platform.h
	FILENAME , 65
get_outputstream	PLATFORM LINUX, 65
devfix::net::socket, 38	_ ·
get_port	PLATFORM_UNSUPPORTED, 65
devfix::net::inetaddress, 20	SOURCE_LINE, 65
get_remote_address	port_t
devfix::net::socket, 38	devfix::net::inetaddress, 18
get_reuse_address	
devfix::net::serversocket, 34	README.md, 77
get_timeout	read
devfix::net::socket, 38	devfix::base::io::inputstream, 23
	devfix::base::io::source, 44
HEX	read t
CMakeCXXCompilerId.cpp, 50	devfix::base::io, 13
omanos, a toomphonaropp, oo	2, 2, 2
inetaddress	SOURCE LINE
devfix::net::inetaddress, 19	platform.h, 65
inetaddress.cpp	STRINGIFY HELPER
··	CMakeCXXCompilerId.cpp, 51
PLATFORM_UNSUPPORTED, 66	STRINGIFY
info_arch	
CMakeCXXCompilerId.cpp, 51	CMakeCXXCompilerId.cpp, 50
info_compiler	set_accept_timeout
CMakeCXXCompilerId.cpp, 51	devfix::net::serversocket, 34
info_language_dialect_default	set_interrupted
CMakeCXXCompilerId.cpp, 51	devfix::net::socket, 39
info_platform	set_timeout
CMakeCXXCompilerId.cpp, 52	devfix::net::socket, 39
interrupted	sink
devfix::net::socket, 38	devfix::base::io::sink, 35
interruptedexception	skip
devfix::base::error::interruptedexception, 26	devfix::base::io::inputstream, 23
ioexception	devfix::base::io::source, 44
·	skip t
devfix::base::error::ioexception, 27, 28	devfix::base::io, 13
is_closed	
devfix::base::io::inputstream, 23	socketexception
devfix::base::io::outputstream, 32	devfix::net::socketexception, 41
devfix::base::io::sink, 36	source
devfix::base::io::source, 43	devfix::base::io::source, 42
devfix::net::serversocket, 34	sp
is closed t	devfix::base, 11
devfix::base::io, 13	
	TEST_ARRAY
main	test_socket.cpp, 76
CMakeCXXCompilerId.cpp, 51	TEST DOUBLE
testrunner.cpp, 77	test_socket.cpp, 76
testrumer.cpp, 77	TEST FLOAT
netbuilder	test_socket.cpp, 76
	TEST LONG
devfix::net::netbuilder, 29	_
netbuilder.h	test_socket.cpp, 76
PLATFORM_UNSUPPORTED, 71	TEST_PORT
DI 4770014 ID	test_socket.cpp, 76
PLATFORM_ID	TEST

82 INDEX

```
test_inetaddress.cpp, 75
    test_socket.cpp, 76
test_inetaddress.cpp
    TEST, 75
test_socket.cpp
    TEST_ARRAY, 76
    TEST_DOUBLE, 76
    TEST_FLOAT, 76
    TEST_LONG, 76
    TEST_PORT, 76
    TEST, 76
testrunner.cpp, 77
    main, 77
timeout_t
    devfix::net::socket, 37
timeoutexception
    devfix::base::error::timeoutexception, 46
up
    devfix::base, 11
what
    devfix::base::error::baseexception, 17
what_arg_
    devfix::base::error::baseexception, 17
write
    devfix::base::io::outputstream, 32
    devfix::base::io::sink, 36
write_t
    devfix::base::io, 14
```