c++ library collection

Generated by Doxygen 1.8.13

Contents

Chapter 1

CppLibs

TODO

- input stream and output stream separate closable (?)

Build

run ./configure make -C build

Documentation

available: here

Chapter 2

Namespace Index

2.1 Namespace List

Here is a list of all namespaces with brief descriptions:

Chapter 3

Hierarchical Index

3.1 Class Hierarchy

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

Chapter 4

Class Index

4.1 Class List

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

Chapter 5

File Index

5.1 File List

Here is a list of all files with brief descriptions:

Chapter 6

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.
- io

  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.

Chapter 7

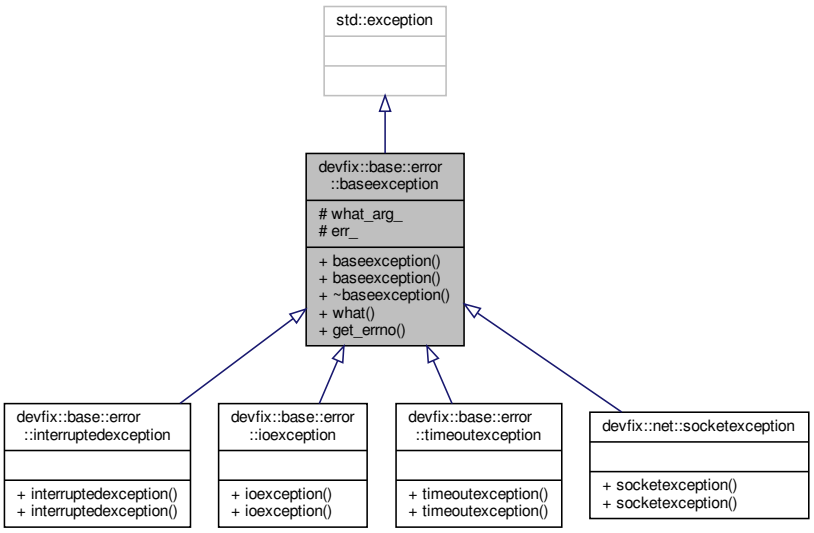
Class Documentation

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)
- ~baseexception () override=default
- const char * what () const noexcept final
- int get_errno () const noexcept

Protected Attributes

- std::string what_arg_
  failure description
- int 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]

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

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

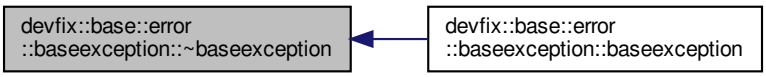
Parameters

what_arg	failure description

7.1.2.3 ~baseexception()

```
devfix::base::error::baseexception::~baseexception ( )  [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

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]

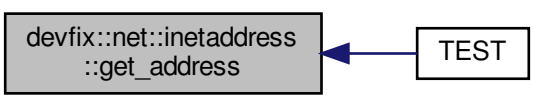
```
devfix::net::inetaddress::inetaddress (
            const std::string & host,
            port_t port,
            family_t family = family_t::IPV4 )
```

7.2.4 Member Function Documentation

7.2.4.1 get_address()

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

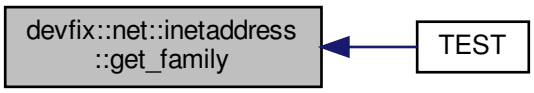
Here is the caller graph for this function:



7.2.4.2 get_family()

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

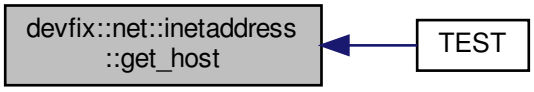
Here is the caller graph for this function:



7.2.4.3 get_host()

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

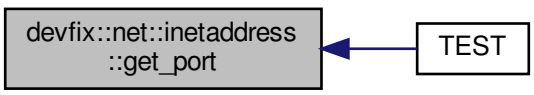
Here is the caller graph for this function:



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:

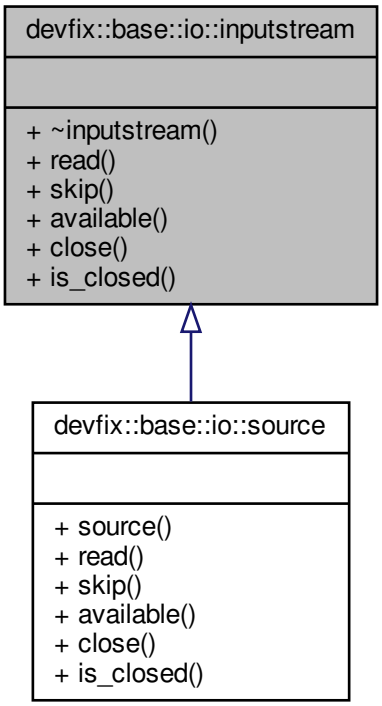
- devfix/net/inetaddress.h
- devfix/net/inetaddress.cpp

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.

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 ~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()

```
virtual void devfix::base::io::inputstream::read (
            void * buf,
            std::size_t len )  [pure virtual]
```

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.

7.3.3.5 skip()

```
virtual void devfix::base::io::inputstream::skip (
            std::size_t n )  [pure virtual]
```

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.

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

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

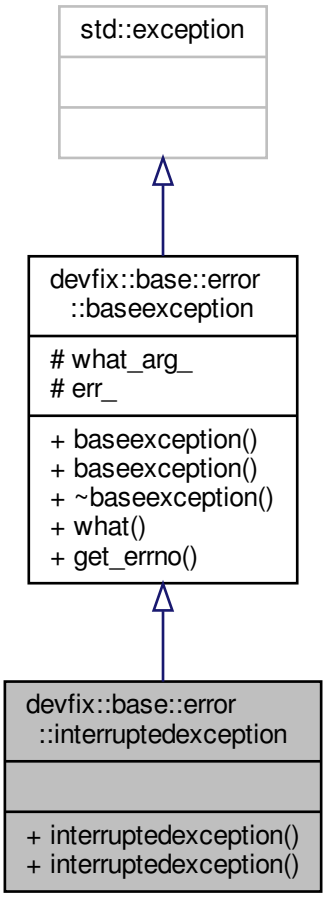
- devfix/base/io/inputstream.h

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.

7.4.2 Constructor & Destructor Documentation

7.4.2.1 interruptedexception() [1/2]

```
devfix::base::error::interruptedexception::interruptedexception (
            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)

7.4.2.2 interruptedexception() [2/2]

```
devfix::base::error::interruptedexception::interruptedexception (
            const char * 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 c-string
err	c error code (errno)

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

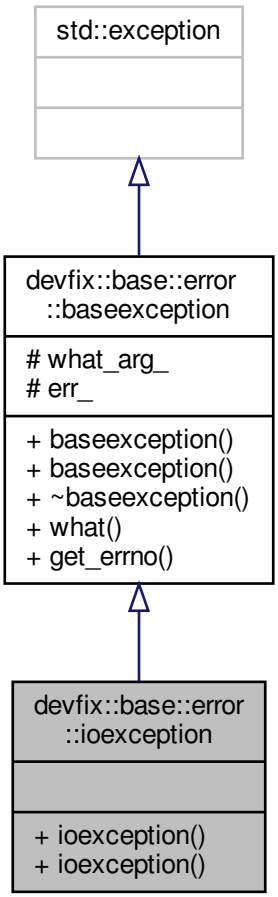
- devfix/base/error/interruptedexception.h

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]

```
devfix::base::error::ioexception::ioexception (
            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)

7.5.2.2 ioexception() [2/2]

```
devfix::base::error::ioexception::ioexception (
            const char * 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 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()

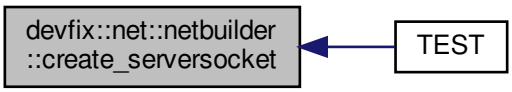
```
devfix::net::netbuilder::netbuilder ( )  [delete]
```

7.6.2 Member Function Documentation

7.6.2.1 create_serversocket()

```
std::unique_ptr< serversocket > devfix::net::netbuilder::create_serversocket (
            inetaddress adr,
            bool reuse_address = false )  [static]
```

Here is the caller graph for this function:



7.6.2.2 create_socket()

```
std::unique_ptr< socket > devfix::net::netbuilder::create_socket (
            inetaddress adr )  [static]
```

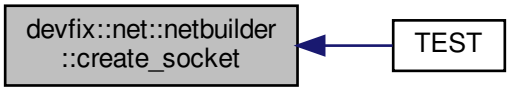
Creates a socket and connects it to the specified remote internet address. The Socket will also bind() to the local address and port supplied.

Parameters

inetaddress	remote address

Returns

Here is the caller graph for this function:



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

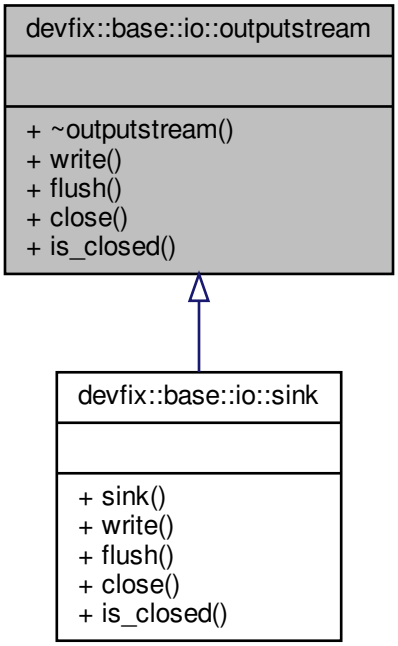
- devfix/net/netbuilder.h
- devfix/net/netbuilder.cpp

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 ~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()

```
virtual void devfix::base::io::outputstream::write (
            const void * buf,
            std::size_t len )  [pure virtual]
```

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()

```
virtual void devfix::net::serversocket::set_accept_timeout (
            socket::timeout_t timeout )  [pure virtual]
```

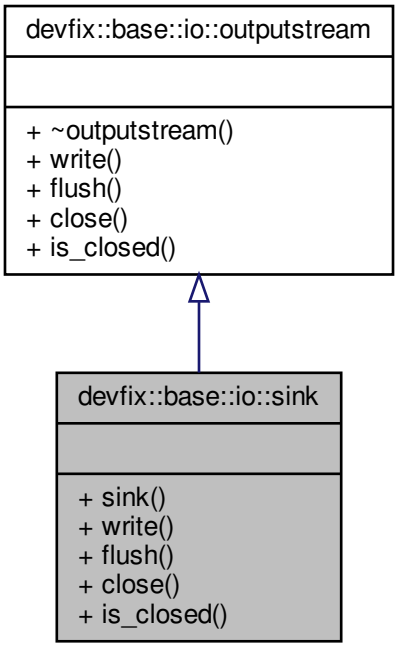
The documentation for this struct was generated from the following file:

- 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()

```
devfix::base::io::sink::sink (
            write_t write,
            flush_t flush,
            close_t close = DEFAULT_CLOSE,
            is_closed_t is_closed = DEFAULT_IS_CLOSED )
```

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()

```
void devfix::base::io::sink::write (
            const void * buf,
            std::size_t len )  [virtual]
```

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()

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

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()

```
virtual void devfix::net::socket::set_timeout (
            timeout_t timeout )  [pure virtual], [noexcept]
```

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:

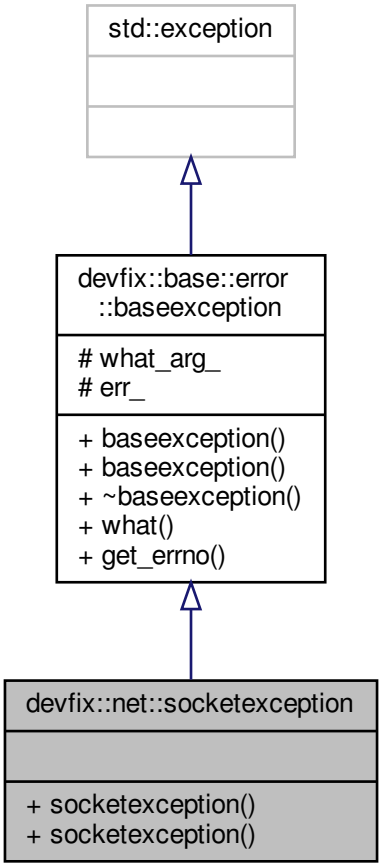
- devfix/net/socket.h

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]

```
devfix::net::socketexception::socketexception (
            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)

7.11.2.2 socketexception() [2/2]

```
devfix::net::socketexception::socketexception (
            const char * 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 c-string
err	c error code (errno)

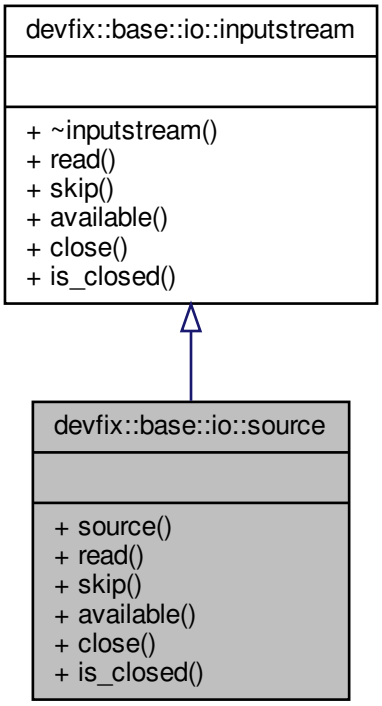
The documentation for this struct was generated from the following file:

- 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()

```
devfix::base::io::source::source (
            read_t read,
            skip_t skip,
            available_t available,
            close_t close = DEFAULT_CLOSE,
            is_closed_t is_closed = DEFAULT_IS_CLOSED )
```

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()

```
void devfix::base::io::source::read (
            void * buf,
            std::size_t len )  [override], [virtual]
```

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()

```
void devfix::base::io::source::skip (
            std::size_t n )  [override], [virtual]
```

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:

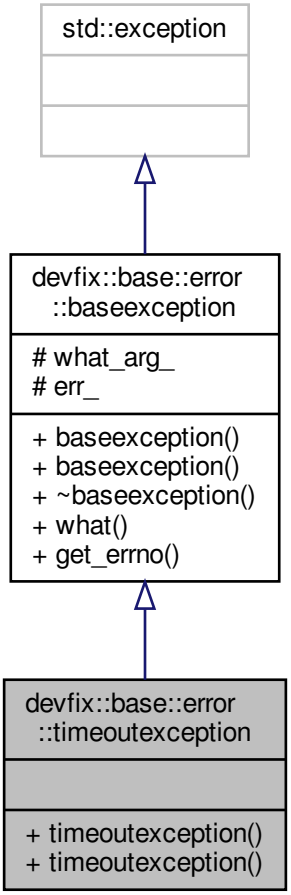
- devfix/base/io/source.h
- devfix/base/io/source.cpp

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]

```
devfix::base::error::timeoutexception::timeoutexception (
            const char * 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 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
```

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(
              n )
```

Value:

```
('0' + (((n) / 10000000)%10)), \
  ('0' + (((n) / 1000000)%10)),  \
  ('0' + (((n) / 100000)%10)),   \
  ('0' + (((n) / 10000)%10)),    \
  ('0' + (((n) / 1000)%10)),     \
  ('0' + (((n) / 100)%10)),      \
  ('0' + (((n) / 10)%10)),       \
  ('0' +  ((n) % 10))
```

8.1.1.5 HEX

```
#define HEX(
              n )
```

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)     & 0xF))
```

8.1.1.6 PLATFORM_ID

```
#define PLATFORM_ID
```

8.1.1.7 STRINGIFY

```
#define STRINGIFY(
              X ) STRINGIFY_HELPER(X)
```

8.1.1.8 STRINGIFY_HELPER

```
#define STRINGIFY_HELPER(
              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 "]"
```

8.1.3.3 info_language_dialect_default

```
const char* info_language_dialect_default
```

Initial value:

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




  "98"
"]"
```

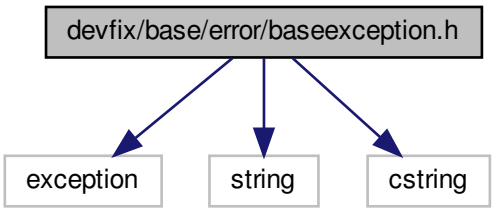
8.1.3.4 info_platform

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

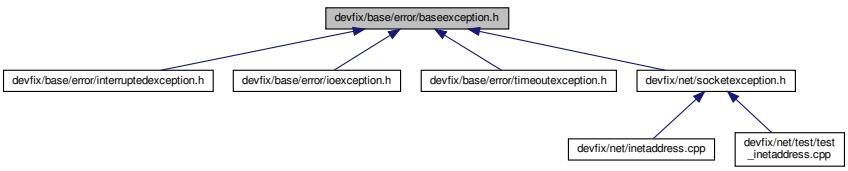
8.2 devfix/base/error/baseexception.h File Reference

```
#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

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

8.2.1.2 exception_guard_m

```
#define exception_guard_m(
              err,
              exception_class,
              message )
```

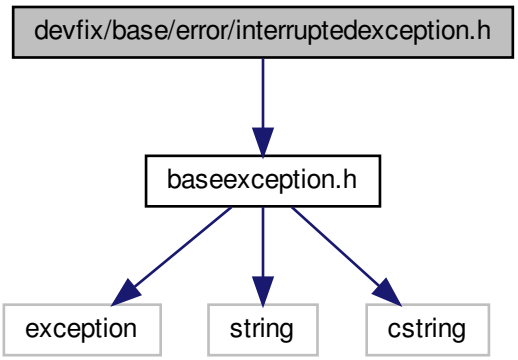
Value:

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

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

```
#include "baseexception.h"
```

Include dependency graph for interruptedexception.h:



Classes

- struct devfix::base::error::interruptedexception

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

Namespaces

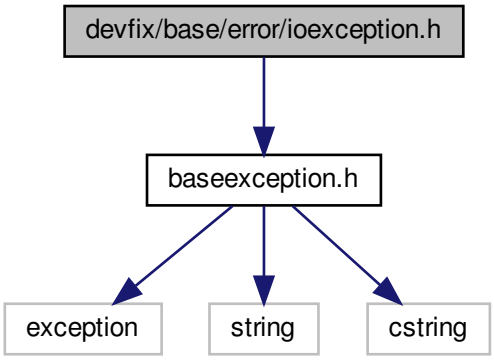
- devfix::base::error

  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

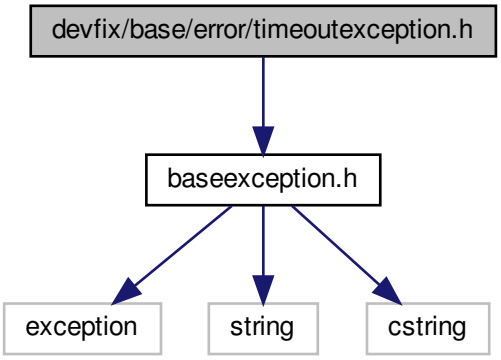
- devfix::base::io

  Namespace for io tool, for instance streams.

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

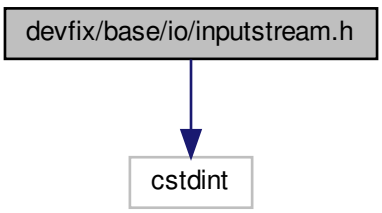
- devfix::base::error

  Namespace for general errors like timeouts or io failures.

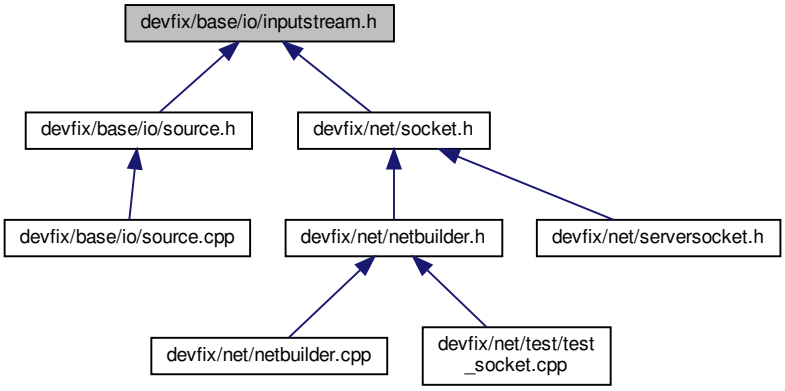
8.8 devfix/base/io/inputstream.h File Reference

```
#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

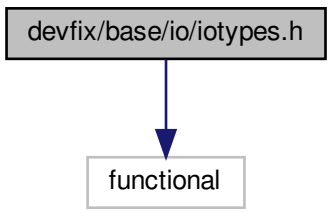
- devfix::base::io

  Namespace for io tool, for instance streams.

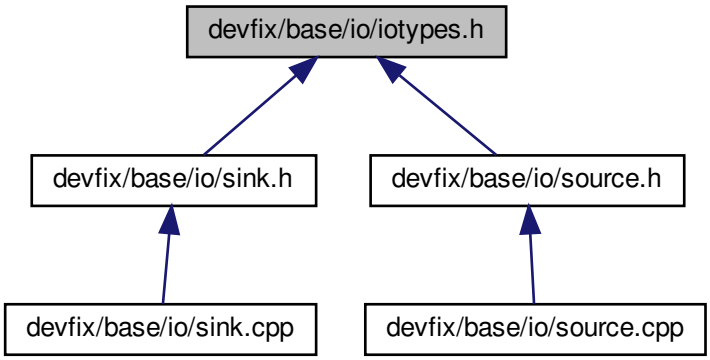
8.9 devfix/base/io/iotypes.h File Reference

```
#include <functional>
```

Include dependency graph for iotypes.h:



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

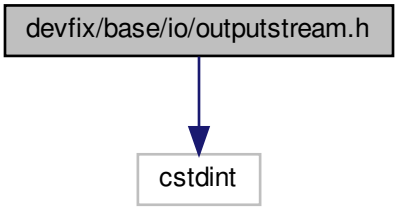
Variables

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

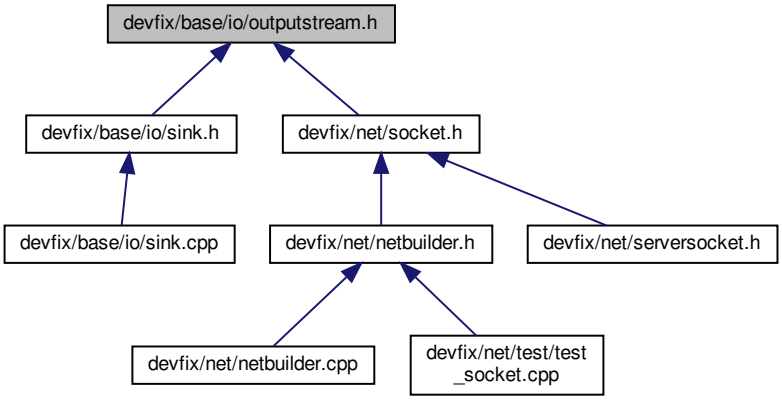
8.10 devfix/base/io/outputstream.h File Reference

```
#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

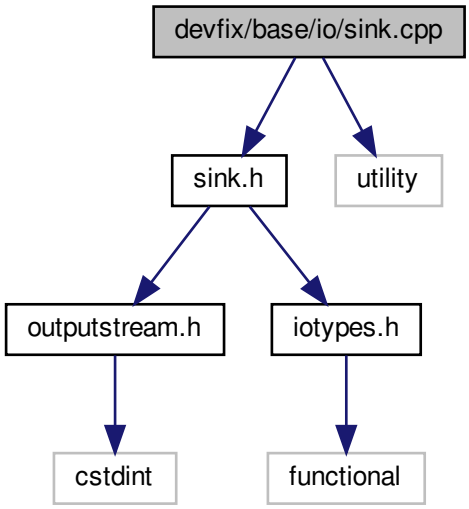
- devfix::base::io

  Namespace for io tool, for instance streams.

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

```
#include "sink.h"
#include <utility>
```

Include dependency graph for sink.cpp:



Namespaces

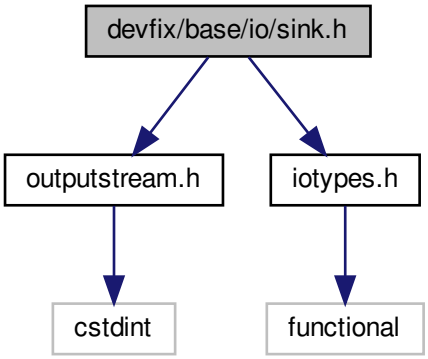
- devfix::base::io

  Namespace for io tool, for instance streams.

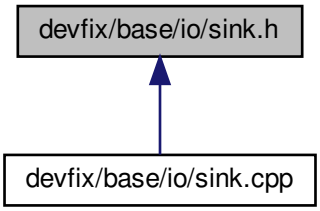
8.12 devfix/base/io/sink.h File Reference

```
#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

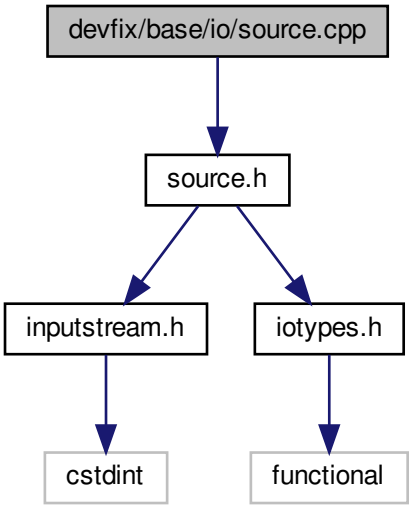
- devfix::base::io

  Namespace for io tool, for instance streams.

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

```
#include "source.h"
```

Include dependency graph for source.cpp:



Namespaces

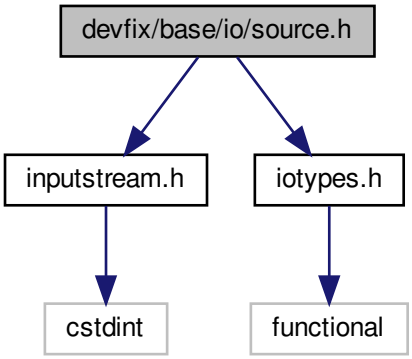
- devfix::base::io

  Namespace for io tool, for instance streams.

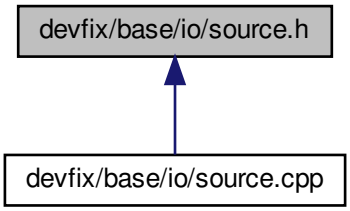
8.14 devfix/base/io/source.h File Reference

```
#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

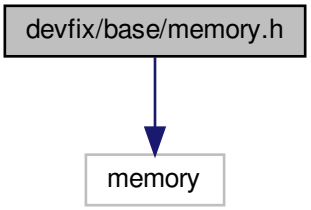
Namespaces

- devfix::base::io

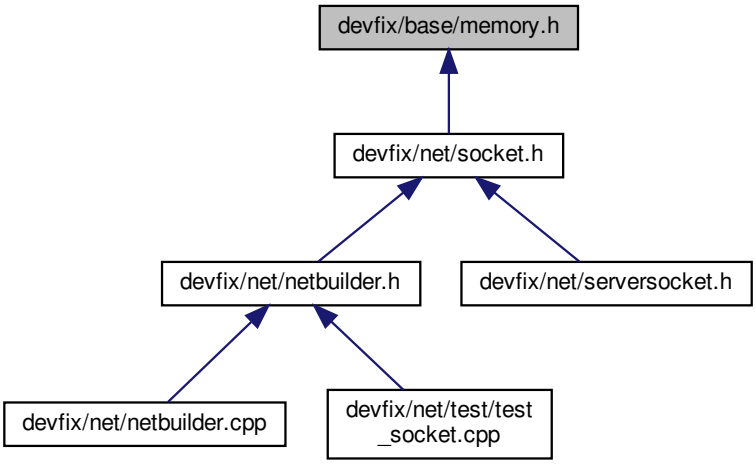
  Namespace for io tool, for instance streams.

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

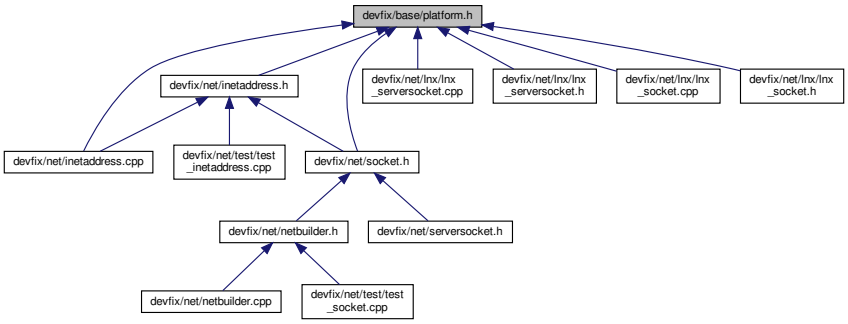
- devfix::base

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" )
```

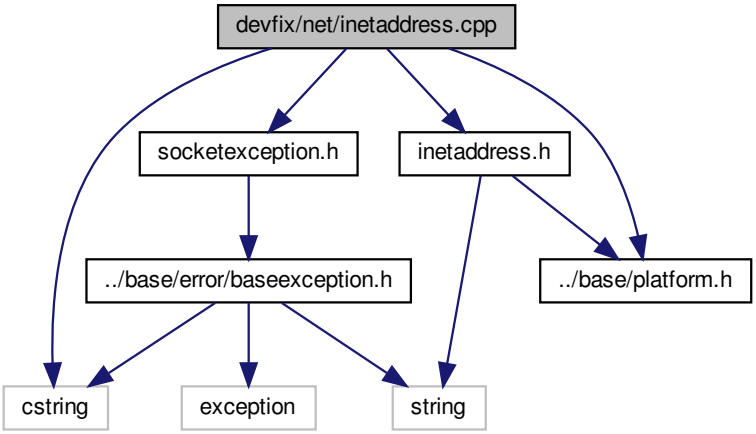
8.16.1.4 SOURCE_LINE

```
#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

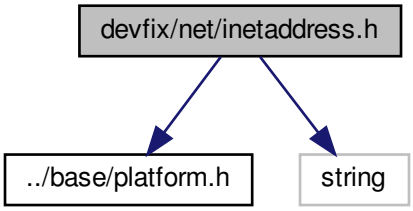
8.17.1.1 PLATFORM_UNSUPPORTED

```
PLATFORM_UNSUPPORTED
```

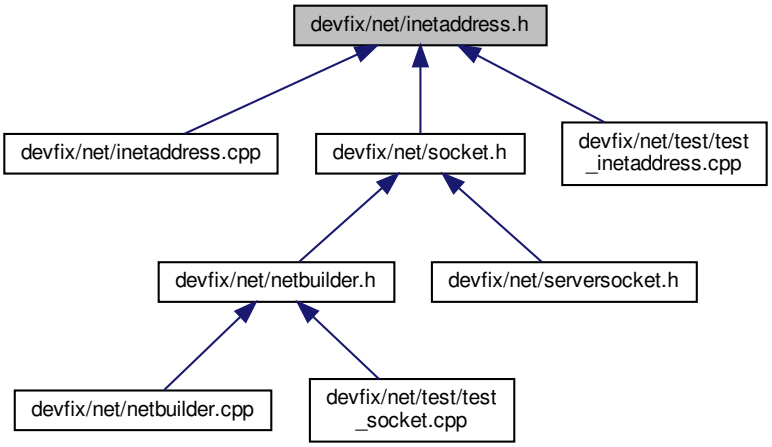
8.18 devfix/net/inetaddress.h File Reference

```
#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

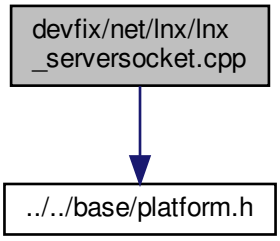
Namespaces

- devfix::net

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

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

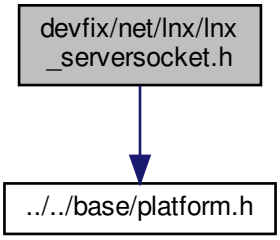
Include dependency graph for lnx_serversocket.cpp:



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

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

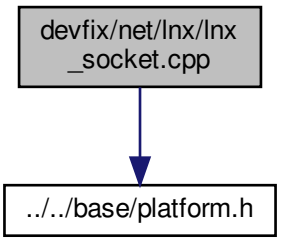
Include dependency graph for lnx_serversocket.h:



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

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

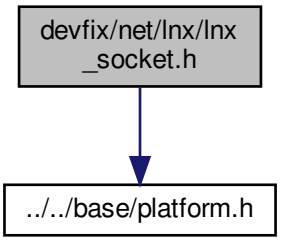
Include dependency graph for lnx_socket.cpp:



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

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

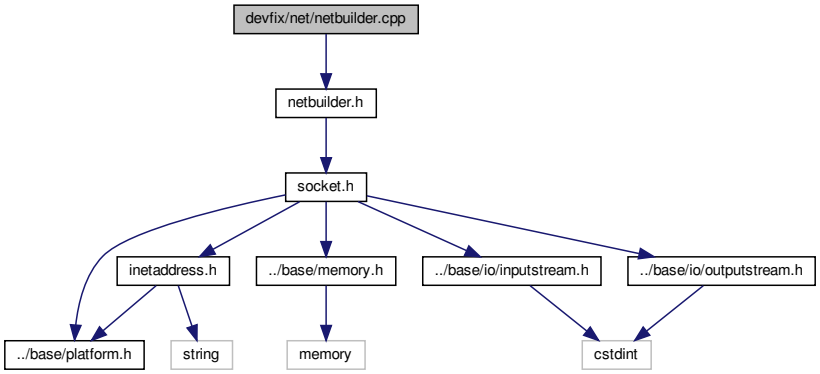
Include dependency graph for lnx_socket.h:



8.23 devfix/net/netbuilder.cpp File Reference

```
#include "netbuilder.h"
```

Include dependency graph for netbuilder.cpp:



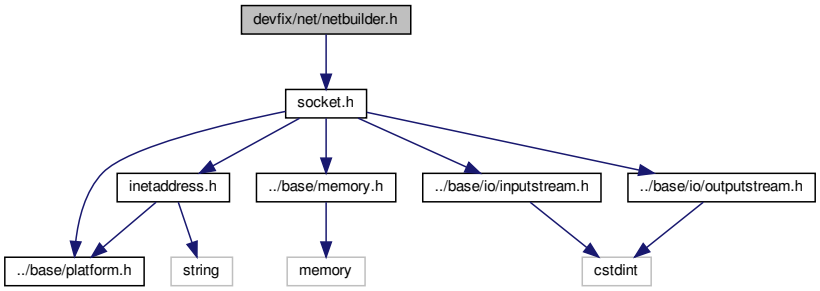
Namespaces

- devfix::net

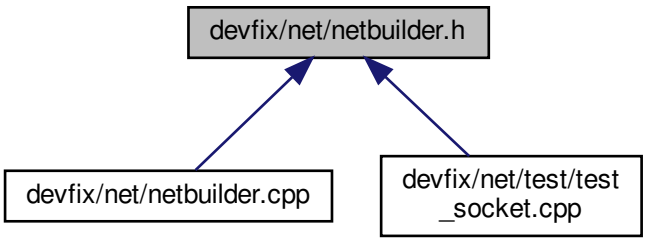
8.24 devfix/net/netbuilder.h File Reference

```
#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

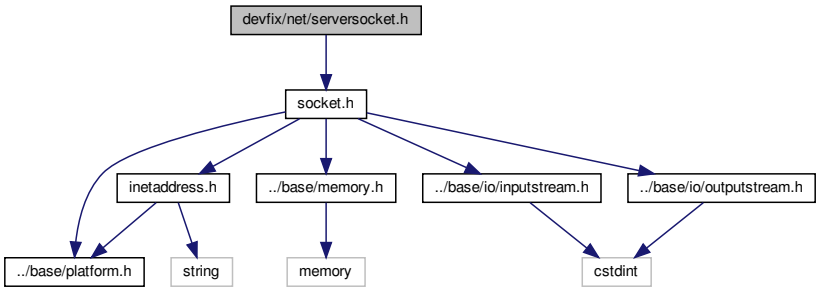
8.24.1.1 PLATFORM_UNSUPPORTED

```
PLATFORM_UNSUPPORTED
```

8.25 devfix/net/serversocket.h File Reference

```
#include "socket.h"
```

Include dependency graph for serversocket.h:



Classes

- struct devfix::net::serversocket

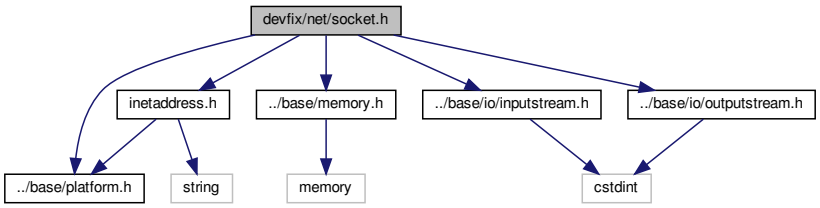
Namespaces

- devfix::net

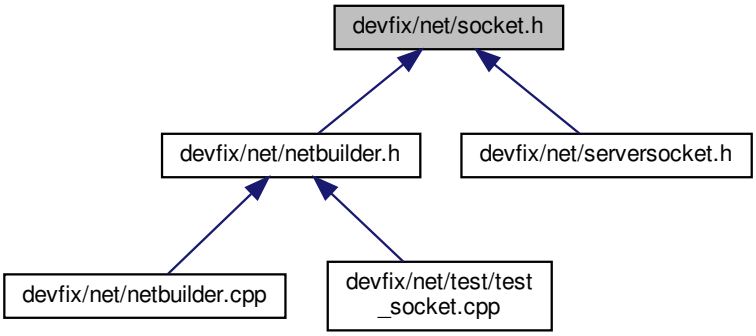
8.26 devfix/net/socket.h File Reference

```
#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

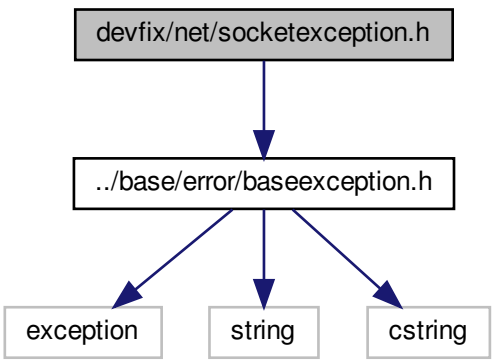
Namespaces

- devfix::net

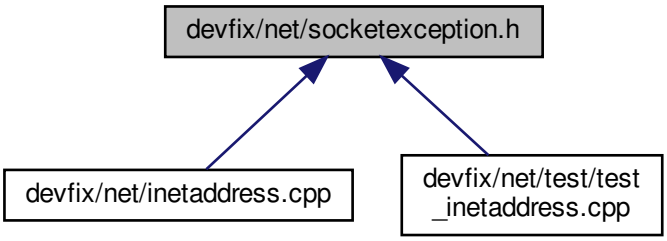
8.27 devfix/net/socketexception.h File Reference

```
#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.

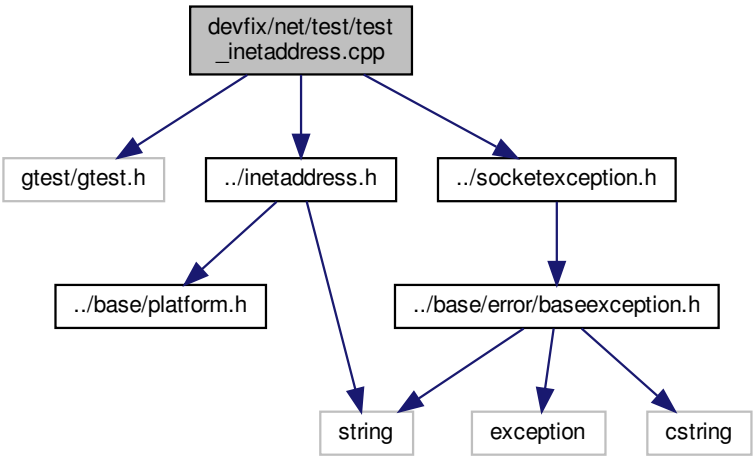
Namespaces

- 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

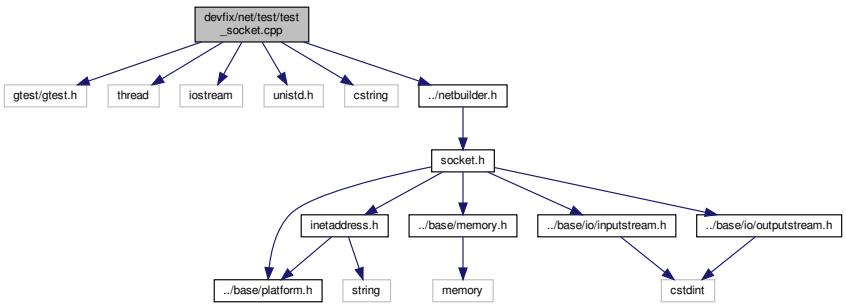
8.28.1.1 TEST()

```
TEST (
            Inetaddress ,
            CreateByHost  )
```

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

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

```
constexpr long TEST_LONG = 1000000
```

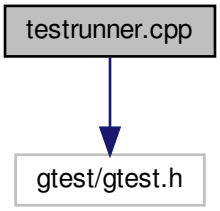
8.29.2.5 TEST_PORT

```
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 (
            int argc,
            char ** argv )
```

Index