



# YAODAQ

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# Chapter 1

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## Chapter 3

# Namespace Index

### 3.1 Namespace List

Here is a list of all namespaces with brief descriptions:

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## Chapter 4

# Hierarchical Index

### 4.1 Class Hierarchy

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

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yaodag::WebsocketServer . . . . .	32



## Chapter 5

# Class Index

### 5.1 Class List

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

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<a href="#">yaodag::Identifier</a>	24
<a href="#">yaodag::Interrupt</a>	26
<a href="#">yaodag::LoggerHandler</a>	27
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## Chapter 6

# File Index

### 6.1 File List

Here is a list of all files with brief descriptions:

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## Chapter 7

# Namespace Documentation

## 7.1 spdlog Namespace Reference

### Typedefs

- using [sink\\_ptr](#) = std::shared\_ptr< spdlog::sinks::sink >

### 7.1.1 Detailed Description

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### 7.1.2 Typedef Documentation

#### 7.1.2.1 sink\_ptr

using [spdlog::sink\\_ptr](#) = typedef std::shared\_ptr<spdlog::sinks::sink>  
Definition at line 15 of file [LoggerHandler.hpp](#).

## 7.2 yaodaq Namespace Reference

### Classes

- class [Exception](#)
- class [Identifier](#)
- class [Interrupt](#)
- class [LoggerHandler](#)
- class [Looper](#)
- class [WebsocketClient](#)
- class [WebsocketServer](#)

### Enumerations

- enum class [Class](#) : std::int\_least16\_t {  
    [Unknown](#) = -1 , [Module](#) = 0 , [Browser](#) = 100 , [WebsocketServer](#) = Module + 1 ,  
    [WebsocketClient](#) = Module + 2 }
- enum class [Severity](#) : std::int\_least16\_t { [Info](#) = 1 , [Warning](#) = 10 , [Error](#) = 100 , [Critical](#) = 1000 }
- enum class [Signal](#) {  
    [NO](#) = 0 , [ABRT](#) = static\_cast<int>( Severity::Critical ) + 1 , [FPE](#) = static\_cast<int>( Severity::Critical ) + 2 ,  
    [ILL](#) = static\_cast<int>( Severity::Critical ) + 3 ,  
    [SEGV](#) = static\_cast<int>( Severity::Critical ) + 4 , [INT](#) = static\_cast<int>( Severity::Warning ) + 1 , [TERM](#) =  
    static\_cast<int>( Severity::Warning ) + 2 }

- enum class [StatusCode](#) : std::int\_least32\_t { [SUCCESS](#) = 0 , [LISTEN\\_ERROR](#) }

## 7.2.1 Detailed Description

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## 7.2.2 Enumeration Type Documentation

### 7.2.2.1 Class

```
enum class yaodag::Class : std::int_least16_t [strong]
```

#### Enumerator

Unknown	
Module	
Browser	
WebsocketServer	
WebsocketClient	

Definition at line 13 of file [Class.hpp](#).

```
00014 {
00015     Unknown = -1,
00016     Module  = 0,
00017     Browser = 100,
00018
00019     WebsocketServer = Module + 1,
00020     WebsocketClient = Module + 2,
00021 };
```

### 7.2.2.2 Severity

```
enum class yaodag::Severity : std::int_least16_t [strong]
```

#### Enumerator

Info	
Warning	
Error	
Critical	

Definition at line 13 of file [Severity.hpp](#).

```
00014 {
00015     Info      = 1,
00016     Warning   = 10,
00017     Error     = 100,
00018     Critical  = 1000,
00019 };
```

### 7.2.2.3 Signal

```
enum class yaodag::Signal [strong]
```

#### Enumerator

NO	
ABRT	

## Enumerator

FPE	
ILL	
SEGV	
INT	
TERM	

Definition at line 15 of file [Signal.hpp](#).

```

00016 {
00017     NO    = 0, // No Signal.
00018     // Critical
00019     ABRT = static_cast<int>( Severity::Critical ) + 1, // (Signal Abort) Abnormal termination, such as
is initiated by the abort function.
00020     FPE  = static_cast<int>( Severity::Critical ) + 2, // (Signal Floating-Point Exception) Erroneous
arithmetic operation, such as zero divide or an operation resulting in overflow (not necessarily with
a floating-point operation).
00021     ILL  = static_cast<int>( Severity::Critical ) + 3, // (Signal Illegal Instruction) Invalid function
image, such as an illegal instruction. This is generally due to a corruption in the code or to an
attempt to execute data.
00022     SEGV = static_cast<int>( Severity::Critical ) + 4, // (Signal Segmentation Violation) Invalid
access to storage: When a program tries to read or write outside the memory it has allocated.
00023     // Warning
00024     INT  = static_cast<int>( Severity::Warning ) + 1, // (Signal Interrupt) Interactive attention
signal. Generally generated by the application user.
00025     TERM = static_cast<int>( Severity::Warning ) + 2, // (Signal Terminate) Termination request sent to
program.
00026 };

```

## 7.2.2.4 StatusCode

```
enum class yaodag::StatusCode : std::int_least32_t [strong]
```

## Enumerator

SUCCESS	
LISTEN_ERROR	

Definition at line 13 of file [StatusCode.hpp](#).

```

00014 {
00015     SUCCESS = 0,
00016     LISTEN_ERROR,
00017 };

```



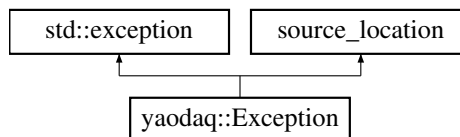
## Chapter 8

# Class Documentation

### 8.1 yaodaq::Exception Class Reference

```
#include <yaodaq/Exception.hpp>
```

Inheritance diagram for yaodaq::Exception:



#### Public Member Functions

- [Exception](#) ()=delete
- [Exception](#) (const [StatusCode](#) &statusCode, const std::string &[description](#), const source\_location &location=source\_location::current())
- [~Exception](#) () noexcept override=default
- const char \* [what](#) () const noexcept final
- const char \* [description](#) () const noexcept
- std::int\_least32\_t [code](#) () const noexcept

#### Static Public Member Functions

- static void [setFormat](#) (const std::string &format)
- static void [setStyle](#) (const fmt::text\_style &style={})

#### 8.1.1 Detailed Description

Definition at line 19 of file [Exception.hpp](#).

#### 8.1.2 Constructor & Destructor Documentation

##### 8.1.2.1 Exception() [1/2]

```
yaodaq::Exception::Exception ( ) [delete]
```

### 8.1.2.2 Exception() [2/2]

```
yaodaq::Exception::Exception (
    const StatusCode & statusCode,
    const std::string & description,
    const source_location & location = source_location::current() )
```

Definition at line 14 of file [Exception.cpp](#).

```
00014 : source_location( location ), m_Code( static\_cast<std::int_least32_t>( statusCode ) ), m_Description(
    description ) { constructMessage(); }
```

### 8.1.2.3 ~Exception()

```
yaodaq::Exception::~Exception ( ) [override], [default], [noexcept]
```

## 8.1.3 Member Function Documentation

### 8.1.3.1 code()

```
int_least32_t yaodaq::Exception::code ( ) const [noexcept]
```

Definition at line 20 of file [Exception.cpp](#).

```
00020 { return m_Code; }
```

### 8.1.3.2 description()

```
const char * yaodaq::Exception::description ( ) const [noexcept]
```

Definition at line 18 of file [Exception.cpp](#).

```
00018 { return m_Description.c_str(); }
```

### 8.1.3.3 setFormat()

```
static void yaodaq::Exception::setFormat (
    const std::string & format ) [inline], [static]
```

Definition at line 24 of file [Exception.hpp](#).

```
00024 { m_Format = format; }
```

### 8.1.3.4 setStyle()

```
static void yaodaq::Exception::setStyle (
    const fmt::text_style & style = {} ) [inline], [static]
```

Definition at line 26 of file [Exception.hpp](#).

```
00026 {} ) { m_Style = style; }
```

### 8.1.3.5 what()

```
const char * yaodaq::Exception::what ( ) const [final], [noexcept]
```

Definition at line 16 of file [Exception.cpp](#).

```
00016 { return m_Message.c_str(); }
```

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

- [yaodaq/Exception.hpp](#)
- [yaodaq/Exception.cpp](#)

## 8.2 yaodaq::Identifier Class Reference

```
#include <yaodaq/Identifier.hpp>
```

## Public Member Functions

- [Identifier](#) ()=default
- [Identifier](#) (const [Class](#) &aClass, const std::string &type, const std::string &name)
- std::string [getClass](#) () const
- std::string [getType](#) () const
- std::string [getName](#) () const
- [Class](#) [getClassId](#) () const
- std::string [get](#) () const

### 8.2.1 Detailed Description

Definition at line 15 of file [Identifier.hpp](#).

### 8.2.2 Constructor & Destructor Documentation

#### 8.2.2.1 Identifier() [1/2]

```
yaodaq::Identifier::Identifier ( ) [default]
```

#### 8.2.2.2 Identifier() [2/2]

```
yaodaq::Identifier::Identifier (
    const Class & aClass,
    const std::string & type,
    const std::string & name )
```

Definition at line 16 of file [Identifier.cpp](#).

```
00016 : m_Class( aClass ), m_Type( type ), m_Name( name ) {}
```

### 8.2.3 Member Function Documentation

#### 8.2.3.1 get()

```
std::string yaodaq::Identifier::get ( ) const
```

Definition at line 26 of file [Identifier.cpp](#).

```
00026 { return fmt::format( "{0}/{1}/{2}", getClass(), getType(), getName() ); }
```

#### 8.2.3.2 getClass()

```
std::string yaodaq::Identifier::getClass ( ) const
```

Definition at line 18 of file [Identifier.cpp](#).

```
00018 { return std::string( magic_enum::enum_name( m_Class ) ); }
```

#### 8.2.3.3 getClassId()

```
Class yaodaq::Identifier::getClassId ( ) const
```

Definition at line 24 of file [Identifier.cpp](#).

```
00024 { return m_Class; }
```

#### 8.2.3.4 getName()

```
std::string yaodaq::Identifier::getName ( ) const
```

Definition at line 22 of file [Identifier.cpp](#).

```
00022 { return m_Name; }
```

#### 8.2.3.5 getType()

```
std::string yaodaq::Identifier::getType ( ) const
```

Definition at line 20 of file [Identifier.cpp](#).

```
00020 { return m_Type; }
```

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

- [yaodaq/Identifier.hpp](#)
- [yaodaq/Identifier.cpp](#)

### 8.3 yaodaq::Interrupt Class Reference

```
#include <yaodaq/Interrupt.hpp>
```

#### Public Member Functions

- [Interrupt\(\)](#)
- void [init\(\)](#)
- void [restore\(\)](#)
- [Signal](#) [getSignal\(\)](#)
- [~Interrupt\(\)](#)

#### 8.3.1 Detailed Description

Definition at line 19 of file [Interrupt.hpp](#).

#### 8.3.2 Constructor & Destructor Documentation

##### 8.3.2.1 Interrupt()

```
yaodaq::Interrupt::Interrupt ( )
```

Definition at line 19 of file [Interrupt.cpp](#).

```
00019 { init(); }
```

##### 8.3.2.2 ~Interrupt()

```
yaodaq::Interrupt::~~Interrupt ( )
```

Definition at line 42 of file [Interrupt.cpp](#).

```
00042 { restore(); }
```

#### 8.3.3 Member Function Documentation



### 8.3.3.1 getSignal()

`Signal yaodag::Interrupt::getSignal ( )`

Definition at line 44 of file [Interrupt.cpp](#).

```

00045 {
00046     if( m_Signal.load() != Signal::NO )
00047     {
00048         std::lock_guard<std::mutex> guard( m_mutex );
00049         init();
00050     }
00051     return m_Signal.load();
00052 }
```

### 8.3.3.2 init()

`void yaodag::Interrupt::init ( )`

Definition at line 31 of file [Interrupt.cpp](#).

```

00032 {
00033     setSignal( Signal::TERM );
00034     setSignal( Signal::TERM );
00035     setSignal( Signal::SEGV );
00036     setSignal( Signal::INT );
00037     setSignal( Signal::ILL );
00038     setSignal( Signal::ABRT );
00039     setSignal( Signal::FPE );
00040 }
```

### 8.3.3.3 restore()

`void yaodag::Interrupt::restore ( )`

Definition at line 21 of file [Interrupt.cpp](#).

```

00022 {
00023     std::signal( SIGTERM, SIG_DFL );
00024     std::signal( SIGSEGV, SIG_DFL );
00025     std::signal( SIGINT, SIG_DFL );
00026     std::signal( SIGILL, SIG_DFL );
00027     std::signal( SIGABRT, SIG_DFL );
00028     std::signal( SIGFPE, SIG_DFL );
00029 }
```

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

- [yaodag/Interrupt.hpp](#)
- [yaodag/Interrupt.cpp](#)

## 8.4 yaodag::LoggerHandler Class Reference

```
#include <yaodag/LoggerHandler.hpp>
```

### Public Types

- enum class [Verbosity](#) {  
    [Off](#) , [Trace](#) , [Debug](#) , [Info](#) ,  
    [Warn](#) , [Error](#) , [Critical](#) }

### Public Member Functions

- [LoggerHandler](#) ()
- [LoggerHandler](#) (const std::string &)
- [~LoggerHandler](#) ()
- void [setVerbosity](#) (const [Verbosity](#) &verbosity)
- std::shared\_ptr< spdlog::logger > [logger](#) ()
- void [addSink](#) (const [spdlog::sink\\_ptr](#) &)
- void [clearSinks](#) ()

### 8.4.1 Detailed Description

Definition at line 21 of file [LoggerHandler.hpp](#).

### 8.4.2 Member Enumeration Documentation

#### 8.4.2.1 Verbosity

```
enum class yaodag::LoggerHandler::Verbosity [strong]
```

Enumerator

Off	
Trace	
Debug	
Info	
Warn	
Error	
Critical	

Definition at line 24 of file [LoggerHandler.hpp](#).

```
00025 {
00026     Off,
00027     Trace,
00028     Debug,
00029     Info,
00030     Warn,
00031     Error,
00032     Critical
00033 };
```

### 8.4.3 Constructor & Destructor Documentation

#### 8.4.3.1 LoggerHandler() [1/2]

```
yaodag::LoggerHandler::LoggerHandler ( )
```

Definition at line 12 of file [LoggerHandler.cpp](#).

```
00012 { init(); }
```

#### 8.4.3.2 LoggerHandler() [2/2]

```
yaodag::LoggerHandler::LoggerHandler (
    const std::string & name ) [explicit]
```

Definition at line 14 of file [LoggerHandler.cpp](#).

```
00014 : m_Name( name ) { init(); }
```

#### 8.4.3.3 ~LoggerHandler()

```
yaodag::LoggerHandler::~~LoggerHandler ( )
```

Definition at line 16 of file [LoggerHandler.cpp](#).

```
00016 {}
```

### 8.4.4 Member Function Documentation

#### 8.4.4.1 addSink()

```
void yaodaq::LoggerHandler::addSink (
    const spdlog::sink\_ptr & sink )
```

Definition at line 41 of file [LoggerHandler.cpp](#).

```
00042 {
00043     m_Sinks.push_back( sink );
00044     init();
00045 }
```

#### 8.4.4.2 clearSinks()

```
void yaodaq::LoggerHandler::clearSinks ( )
```

Definition at line 47 of file [LoggerHandler.cpp](#).

```
00048 {
00049     m_Sinks.clear();
00050     init();
00051 }
```

#### 8.4.4.3 logger()

```
std::shared_ptr< spdlog::logger > yaodaq::LoggerHandler::logger ( )
```

Definition at line 39 of file [LoggerHandler.cpp](#).

```
00039 { return std::shared_ptr<spdlog::logger>( m_Logger ); }
```

#### 8.4.4.4 setVerbosity()

```
void yaodaq::LoggerHandler::setVerbosity (
    const Verbosity & verbosity )
```

Definition at line 18 of file [LoggerHandler.cpp](#).

```
00019 {
00020     m_Verbosity = verbosity;
00021     init();
00022 }
```

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

- [yaodaq/LoggerHandler.hpp](#)
- [yaodaq/LoggerHandler.cpp](#)

## 8.5 yaodaq::Looper Class Reference

```
#include <yaodaq/Looper.hpp>
```

### Public Member Functions

- [Looper](#) ()
- [Signal loop](#) ()
- [Signal getSignal](#) ()
- void [supressInstance](#) ()
- [~Looper](#) ()

### Static Public Member Functions

- static int [getInstance](#) ()

#### 8.5.1 Detailed Description

Definition at line 15 of file [Looper.hpp](#).

## 8.5.2 Constructor & Destructor Documentation

### 8.5.2.1 Looper()

yaodaq::Looper::Looper ( )

Definition at line 28 of file [Looper.cpp](#).

```
00029 {
00030     if( m_hasBeenAdded == false )
00031     {
00032         m_hasBeenAdded = true;
00033         ++m_instance;
00034     }
00035 }
```

### 8.5.2.2 ~Looper()

yaodaq::Looper::~~Looper ( )

Definition at line 52 of file [Looper.cpp](#).

```
00053 {
00054     if( m_hasBeenAdded == true && m_hasBeenSupressed == false )
00055     {
00056         m_hasBeenSupressed = true;
00057         --m_instance;
00058     }
00059 }
```

## 8.5.3 Member Function Documentation

### 8.5.3.1 getInstance()

int yaodaq::Looper::getInstance ( ) [static]

Definition at line 17 of file [Looper.cpp](#).

```
00017 { return m_instance; }
```

### 8.5.3.2 getSignal()

Signal yaodaq::Looper::getSignal ( )

Definition at line 50 of file [Looper.cpp](#).

```
00050 { return m_Interrupt.getSignal(); }
```

### 8.5.3.3 loop()

Signal yaodaq::Looper::loop ( )

Definition at line 37 of file [Looper.cpp](#).

```
00038 {
00039     static Signal signal{ yaodaq::Signal::NO };
00040     if( m_instance == 0 )
00041     {
00042         do {
00043             signal = m_Interrupt.getSignal();
00044             std::this_thread::sleep_for( std::chrono::microseconds( 1 ) );
00045         } while( signal == yaodaq::Signal::NO );
00046     }
00047     return signal;
00048 }
```

### 8.5.3.4 supressInstance()

void yaodaq::Looper::supressInstance ( )

Definition at line 19 of file [Looper.cpp](#).

```
00020 {
```

```

00021     if( m_hasBeenSupressed == false )
00022     {
00023         m_hasBeenSupressed = true;
00024         m_instance--;
00025     }
00026 }

```

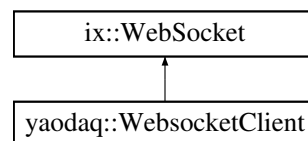
The documentation for this class was generated from the following files:

- [yaodag/Looper.hpp](#)
- [yaodag/Looper.cpp](#)

## 8.6 yaodag::WebSocketClient Class Reference

```
#include <yaodag/WebsocketClient.hpp>
```

Inheritance diagram for yaodag::WebSocketClient:



### Public Member Functions

- [WebSocketClient](#) (const std::string &name, const std::string &type="DefaultWebSocketClient")
- virtual [~WebSocketClient](#) ()
- void [start](#) ()
- void [stop](#) ()
- void [loop](#) ()
- std::shared\_ptr< spdlog::logger > [logger](#) ()

### 8.6.1 Detailed Description

Definition at line 21 of file [WebSocketClient.hpp](#).

### 8.6.2 Constructor & Destructor Documentation

#### 8.6.2.1 WebSocketClient()

```

yaodag::WebSocketClient::WebSocketClient (
    const std::string & name,
    const std::string & type = "DefaultWebSocketClient" ) [explicit]

```

Definition at line 16 of file [WebSocketClient.cpp](#).

```

00016     Class::WebSocketClient, type, name ), m_Logger( m_Identifier.get() )
00017 {
00018     ix::initNetSystem();
00019     ix::WebSocketHttpHeaders header{ { "Id", m_Identifier.get() } };
00020     setExtraHeaders( header );
00021     m_Logger.addSink( std::make_shared<spdlog::sinks::stdout_color_sink_mt>() );
00022     setOnMessageCallback(
00023         [this]( const ix::WebSocketMessagePtr& msg )
00024         {
00025             if( msg->type == ix::WebSocketMessageType::Message ) { logger()->error( "{}", msg->str ); }
00026         } );
00027 }

```

### 8.6.2.2 ~WebSocketClient()

yaodaq::WebSocketClient::~~WebSocketClient ( ) [virtual]

Definition at line 29 of file [WebSocketClient.cpp](#).

```
00030 {
00031     stop();
00032     ix::uninitNetSystem();
00033 }
```

## 8.6.3 Member Function Documentation

### 8.6.3.1 logger()

std::shared\_ptr< spdlog::logger > yaodaq::WebSocketClient::logger ( ) [inline]

Definition at line 29 of file [WebSocketClient.hpp](#).

```
00029 { return m_Logger.logger(); }
```

### 8.6.3.2 loop()

void yaodaq::WebSocketClient::loop ( )

Definition at line 54 of file [WebSocketClient.cpp](#).

```
00055 {
00056     WebSocketClient::start();
00057     m_Looper.supressInstance();
00058     onRaisingSignal();
00059 }
```

### 8.6.3.3 start()

void yaodaq::WebSocketClient::start ( )

Definition at line 35 of file [WebSocketClient.cpp](#).

```
00036 {
00037     if( getReadyState() == ix::ReadyState::Closed || getReadyState() == ix::ReadyState::Closing )
00038     {
00039         logger()->trace( "Client started. Connected to {}", getUrl() );
00040         ix::WebSocket::start();
00041     }
00042 }
```

### 8.6.3.4 stop()

void yaodaq::WebSocketClient::stop ( )

Definition at line 44 of file [WebSocketClient.cpp](#).

```
00045 {
00046     if( getReadyState() == ix::ReadyState::Open || getReadyState() == ix::ReadyState::Connecting )
00047     {
00048         logger()->trace( "Client stopped" );
00049         ix::WebSocket::stop();
00050         while( getReadyState() != ix::ReadyState::Closed ) { std::this_thread::sleep_for(
std::chrono::microseconds( 1 ) ); }
00051     }
00052 }
```

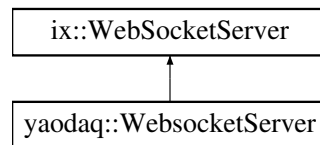
The documentation for this class was generated from the following files:

- [yaodaq/WebsocketClient.hpp](#)
- [yaodaq/WebsocketClient.cpp](#)

## 8.7 yaodaq::WebSocketServer Class Reference

```
#include <yaodaq/WebsocketServer.hpp>
```

Inheritance diagram for yaodaq::WebSocketServer:



## Public Member Functions

- [WebsocketServer](#) (const std::string &name, const int &port=ix::SocketServer::kDefaultPort, const std::string &host=ix::SocketServer::kDefaultHost, const int &backlog=ix::SocketServer::kDefaultTcpBacklog, const std::size\_t &maxConnections=ix::SocketServer::kDefaultMaxConnections, const int &handshakeTimeoutSecs=ix::WebsocketServer::kDefaultHandShakeTimeoutSecs, const int &addressFamily=ix::SocketServer::kDefaultAddressFamily, const std::string &type="DefaultWebsocketServer")
- virtual [~WebsocketServer](#) ()
- void [loop](#) ()
- void [start](#) ()
- void [stop](#) (bool useless=true)
- void [listen](#) ()
- void [setVerbosity](#) (const yaodaq::LoggerHandler::Verbosity &verbosity)
- std::shared\_ptr< spdlog::logger > [logger](#) ()

### 8.7.1 Detailed Description

Definition at line 21 of file [WebsocketServer.hpp](#).

### 8.7.2 Constructor & Destructor Documentation

#### 8.7.2.1 WebsocketServer()

```

yaodaq::WebsocketServer::WebsocketServer (
    const std::string & name,
    const int & port = ix::SocketServer::kDefaultPort,
    const std::string & host = ix::SocketServer::kDefaultHost,
    const int & backlog = ix::SocketServer::kDefaultTcpBacklog,
    const std::size_t & maxConnections = ix::SocketServer::kDefaultMaxConnections,
    const int & handshakeTimeoutSecs = ix::WebsocketServer::kDefaultHandShakeTimeoutSecs,
    const int & addressFamily = ix::SocketServer::kDefaultAddressFamily,
    const std::string & type = "DefaultWebsocketServer" ) [explicit]

```

Definition at line 22 of file [WebsocketServer.cpp](#).

```

00022
00023     :
00024     ix::WebSocketServer( port, host, backlog, maxConnections, handshakeTimeoutSecs, addressFamily ),
00025     m_Identifier( Class::WebsocketServer, type, name ), m_Logger( m_Identifier.get() )
00026 {
00027     ix::initNetSystem();
00028     m_Logger.addSink( std::make_shared<spdlog::sinks::stdout_color_sink_mt>() );
00029     setOnClientMessageCallback(
00030         []( std::shared_ptr<ix::ConnectionState> connectionState, ix::WebSocket& websocket, const
00031             ix::WebSocketMessagePtr& msg )
00032         {
00033             // The ConnectionState object contains information about the connection,
00034             // at this point only the client ip address and the port.
00035             std::cout << "Remote ip: " << connectionState->getRemoteIp() << std::endl;
00036             if( msg->type == ix::WebSocketMessageType::Open )
00037             {
00038                 std::cout << "New connection" << std::endl;
00039                 // A connection state object is available, and has a default id
00040                 // You can subclass ConnectionState and pass an alternate factory
00041                 // to override it. It is useful if you want to store custom
00042                 // attributes per connection (authenticated bool flag, attributes, etc...)

```

```

00042         std::cout << "id: " << connectionState->getId() << std::endl;
00043
00044         // The uri the client did connect to.
00045         std::cout << "Uri: " << msg->openInfo.uri << std::endl;
00046
00047         std::cout << "Headers:" << std::endl;
00048         for( auto it: msg->openInfo.headers ) { std::cout << "\t" << it.first << ": " << it.second <<
std::endl; }
00049     }
00050     else if( msg->type == ix::WebSocketMessageType::Message )
00051     {
00052         // For an echo server, we just send back to the client whatever was received by the server
00053         // All connected clients are available in an std::set. See the broadcast cpp example.
00054         // Second parameter tells whether we are sending the message in binary or text mode.
00055         // Here we send it in the same mode as it was received.
00056         std::cout << "Received: " << msg->str << std::endl;
00057
00058         websocket.send( msg->str, msg->binary );
00059     }
00060 } );
00061 }

```

### 8.7.2.2 ~WebSocketServer()

yaodaq::WebSocketServer::~~WebSocketServer ( ) [virtual]

Definition at line 101 of file [WebSocketServer.cpp](#).

```

00102 {
00103     stop();
00104     ix::uninitNetSystem();
00105 }

```

## 8.7.3 Member Function Documentation

### 8.7.3.1 listen()

void yaodaq::WebSocketServer::listen ( )

Definition at line 63 of file [WebSocketServer.cpp](#).

```

00064 {
00065     if( !m_isListening )
00066     {
00067         std::pair<bool, std::string> ret = ix::WebSocketServer::listen();
00068         if( ret.first )
00069         {
00070             m_isListening = ret.first;
00071             logger()->info( "Server listening on host {0} port {1}", getHost(), getPort() );
00072         }
00073         else
00074             throw Exception( StatusCode::LISTEN_ERROR, ret.second );
00075     }
00076 }

```

### 8.7.3.2 logger()

std::shared\_ptr< spdlog::logger > yaodaq::WebSocketServer::logger ( ) [inline]

Definition at line 35 of file [WebSocketServer.hpp](#).

```

00035 { return m_Logger.logger(); }

```

### 8.7.3.3 loop()

void yaodaq::WebSocketServer::loop ( )

Definition at line 107 of file [WebSocketServer.cpp](#).

```

00108 {
00109     listen();
00110     start();
00111     m_Looper.supressInstance();
00112     onRaisingSignal();
00113 }

```



#### 8.7.3.4 setVerbosity()

```
void yaodaq::WebsocketServer::setVerbosity (
    const yaodaq::LoggerHandler::Verbosity & verbosity )
```

Definition at line 99 of file [WebsocketServer.cpp](#).

```
00099 { m_Logger.setVerbosity( verbosity ); }
```

#### 8.7.3.5 start()

```
void yaodaq::WebsocketServer::start ( )
```

Definition at line 78 of file [WebsocketServer.cpp](#).

```
00079 {
00080     if( !m_isStarted )
00081     {
00082         m_isStarted = true;
00083         logger()->trace( "Server started" );
00084         ix::WebSocketServer::start();
00085     }
00086 }
```

#### 8.7.3.6 stop()

```
void yaodaq::WebsocketServer::stop (
    bool useless = true )
```

Definition at line 88 of file [WebsocketServer.cpp](#).

```
00089 {
00090     if( !m_isStopped )
00091     {
00092         m_isStopped = true;
00093         useless      = !useless;
00094         logger()->trace( "Server stopped" );
00095         ix::WebSocketServer::stop();
00096     }
00097 }
```

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

- [yaodaq/WebsocketServer.hpp](#)
- [yaodaq/WebsocketServer.cpp](#)



## Chapter 9

# File Documentation

### 9.1 docs/third\_party\_licenses.md File Reference

### 9.2 License.md File Reference

### 9.3 yaodaq/Class.hpp File Reference

```
#include <cstdint>
```

#### Namespaces

- namespace [yaodaq](#)

#### Enumerations

- enum class [yaodaq::Class](#) : std::int\_least16\_t {  
    [yaodaq::Unknown](#) = -1 , [yaodaq::Module](#) = 0 , [yaodaq::Browser](#) = 100 , [yaodaq::WebsocketServer](#) = Module  
    + 1 ,  
    [yaodaq::WebsocketClient](#) = Module + 2 }

### 9.4 Class.hpp

[Go to the documentation of this file.](#)

```
00001 #ifndef YAODAQ_CLASS_HPP
00002 #define YAODAQ_CLASS_HPP
00003
00008 #include <cstdint>
00009
00010 namespace yaodaq
00011 {
00012
00013 enum class Class : std::int_least16_t
00014 {
00015     Unknown = -1,
00016     Module = 0,
00017     Browser = 100,
00018
00019     WebsocketServer = Module + 1,
00020     WebsocketClient = Module + 2,
00021 };
00022
00023 } // namespace yaodaq
00024
00025 #endif // YAODAQ_CLASS_HPP
```

## 9.5 yaodaq/Exception.hpp File Reference

```
#include <cstdint>
#include <exception>
#include <fmt/color.h>
#include <source_location/source_location.hpp>
#include <string>
```

### Classes

- class [yaodaq::Exception](#)

### Namespaces

- namespace [yaodaq](#)

## 9.6 Exception.hpp

[Go to the documentation of this file.](#)

```
00001 #ifndef YAODAQ_EXCEPTION
00002 #define YAODAQ_EXCEPTION
00003
00008 #include <cstdint>
00009 #include <exception>
00010 #include <fmt/color.h>
00011 #include <source_location/source_location.hpp>
00012 #include <string>
00013
00014 namespace yaodaq
00015 {
00016
00017     enum class StatusCode : std::int_least32_t;
00018
00019     class Exception : public std::exception, public source_location
00020     {
00021     public:
00022         Exception() = delete;
00023
00024         static void setFormat( const std::string& format ) { m_Format = format; }
00025
00026         static void setStyle( const fmt::text_style& style = {} ) { m_Style = style; }
00027
00028         Exception( const StatusCode& statusCode, const std::string& description, const source_location&
location = source_location::current() );
00029         ~Exception() noexcept override = default;
00030         [[nodiscard]] const char* what() const noexcept final;
00031         [[nodiscard]] const char* description() const noexcept;
00032         [[nodiscard]] std::int_least32_t code() const noexcept;
00033
00034     private:
00035         static fmt::text_style m_Style;
00036         static std::string m_Format;
00037         const std::int_least32_t m_Code{ 0 };
00038         std::string m_Description;
00039         std::string m_Message;
00040         void constructMessage();
00041     };
00042
00043 } // namespace yaodaq
00044
00045 #endif
```

## 9.7 yaodaq/Identifier.hpp File Reference

```
#include "yaodaq/Class.hpp"
#include <string>
```

## Classes

- class [yaodaq::Identifier](#)

## Namespaces

- namespace [yaodaq](#)

## 9.8 Identifier.hpp

[Go to the documentation of this file.](#)

```
00001 #ifndef YAODAQ_IDENTIFIER_HPP
00002 #define YAODAQ_IDENTIFIER_HPP
00003
00008 #include "yaodaq/Class.hpp"
00009
00010 #include <string>
00011
00012 namespace yaodaq
00013 {
00014
00015 class Identifier
00016 {
00017 public:
00018     Identifier() = default;
00019     Identifier( const Class& aClass, const std::string& type, const std::string& name );
00020     [[nodiscard]] std::string getClass() const;
00021     [[nodiscard]] std::string getType() const;
00022     [[nodiscard]] std::string getName() const;
00023     [[nodiscard]] Class getClassId() const;
00024     [[nodiscard]] std::string get() const;
00025
00026 private:
00027     Class m_Class{ Class::Unknown };
00028     std::string m_Type{ "Unknown" };
00029     std::string m_Name{ "Unknown" };
00030 };
00031
00032 } // namespace yaodaq
00033
00034 #endif // YAODAQ_IDENTIFIER_HPP
```

## 9.9 yaodaq/Interrupt.hpp File Reference

```
#include "yaodaq/Signal.hpp"
#include <atomic>
#include <csignal>
#include <mutex>
```

## Classes

- class [yaodaq::Interrupt](#)

## Namespaces

- namespace [yaodaq](#)

## 9.10 Interrupt.hpp

[Go to the documentation of this file.](#)

```
00001 #ifndef YAODAQ_HANDLER_HPP
00002 #define YAODAQ_HANDLER_HPP
00003
00008 #include "yaodaq/Signal.hpp"
00009
00010 #include <atomic>
00011 #include <csignal>
00012 #include <mutex>
```

```

00013
00014 namespace yaodaq
00015 {
00016
00017 enum class Signal;
00018
00019 class Interrupt
00020 {
00021 public:
00022     Interrupt();
00023     void init();
00024     void restore();
00025     Signal getSignal();
00026     ~Interrupt();
00027
00028 private:
00029     volatile static std::atomic<Signal> m_Signal;
00030     void setSignal( const Signal& signal );
00031     std::mutex m_mutex;
00032 };
00033
00034 } // namespace yaodaq
00035
00036 #endif // YAODAQ_HANDLER_HPP

```

## 9.11 yaodaq/LoggerHandler.hpp File Reference

```

#include <memory>
#include <spdlog/fwd.h>
#include <string>
#include <vector>

```

### Classes

- class [yaodaq::LoggerHandler](#)

### Namespaces

- namespace [spdlog](#)
- namespace [yaodaq](#)

### Typedefs

- using [spdlog::sink\\_ptr](#) = std::shared\_ptr< spdlog::sinks::sink >

## 9.12 LoggerHandler.hpp

[Go to the documentation of this file.](#)

```

00001 #ifndef YAODAQ_LOGGERHANDLER
00002 #define YAODAQ_LOGGERHANDLER
00003
00008 #include <memory>
00009 #include <spdlog/fwd.h>
00010 #include <string>
00011 #include <vector>
00012
00013 namespace spdlog
00014 {
00015     using sink_ptr = std::shared_ptr<spdlog::sinks::sink>;
00016 }
00017
00018 namespace yaodaq
00019 {
00020
00021 class LoggerHandler
00022 {
00023 public:
00024     enum class Verbosity
00025     {
00026         Off,
00027         Trace,

```

```

00028     Debug,
00029     Info,
00030     Warn,
00031     Error,
00032     Critical
00033 };
00034 LoggerHandler();
00035 explicit LoggerHandler( const std::string& );
00036 ~LoggerHandler();
00037 void          setVerbosity( const Verbosity& verbosity );
00038 std::shared_ptr<spdlog::logger> logger();
00039 void          addSink( const spdlog::sink_ptr& );
00040 void          clearSinks();
00041
00042 private:
00043     std::shared_ptr<spdlog::logger> m_Logger{ nullptr };
00044     std::vector<spdlog::sink_ptr> m_Sinks;
00045     std::string m_Name{ "Unknown" };
00046     Verbosity m_Verbosity{ Verbosity::Trace };
00047     void init();
00048 };
00049
00050 } // namespace yaodaq
00051
00052 #endif

```

## 9.13 yaodaq/Looper.hpp File Reference

```
#include "yaodaq/Interrupt.hpp"
```

### Classes

- class [yaodaq::Looper](#)

### Namespaces

- namespace [yaodaq](#)

## 9.14 Looper.hpp

[Go to the documentation of this file.](#)

```

00001 #ifndef YAODAQ_LOOPER
00002 #define YAODAQ_LOOPER
00003
00008 #include "yaodaq/Interrupt.hpp"
00009
00010 namespace yaodaq
00011 {
00012
00013     enum class Signal;
00014
00015     class Looper
00016     {
00017     public:
00018         Looper();
00019         Signal loop();
00020         Signal getSignal();
00021         static int getInstance();
00022         void supressInstance();
00023         ~Looper();
00024
00025     private:
00026         static int m_instance;
00027         bool m_hasBeenAdded{ false };
00028         bool m_hasBeenSupressed{ false };
00029         static Interrupt m_interrupt;
00030     };
00031
00032 } // namespace yaodaq
00033
00034 #endif // YAODAQ_LOOPER

```

## 9.15 yaodaq/Severity.hpp File Reference

```
#include <cstdint>
```

### Namespaces

- namespace [yaodaq](#)

### Enumerations

- enum class [yaodaq::Severity](#) : std::int\_least16\_t { [yaodaq::Info](#) = 1 , [yaodaq::Warning](#) = 10 , [yaodaq::Error](#) = 100 , [yaodaq::Critical](#) = 1000 }

## 9.16 Severity.hpp

[Go to the documentation of this file.](#)

```
00001 #ifndef YAODAQ_SEVERITY
00002 #define YAODAQ_SEVERITY
00003
00004 #include <cstdint>
00005
00010 namespace yaodaq
00011 {
00012
00013 enum class Severity : std::int_least16_t
00014 {
00015     Info      = 1,
00016     Warning   = 10,
00017     Error     = 100,
00018     Critical  = 1000,
00019 };
00020
00021 } // namespace yaodaq
00022
00023 #endif // YAODAQ_SEVERITY
```

## 9.17 yaodaq/Signal.hpp File Reference

```
#include "yaodaq/Severity.hpp"
#include <cstdint>
```

### Namespaces

- namespace [yaodaq](#)

### Enumerations

- enum class [yaodaq::Signal](#) { [yaodaq::NO](#) = 0 , [yaodaq::ABRT](#) = static\_cast<int>( Severity::Critical ) + 1 , [yaodaq::FPE](#) = static\_cast<int>( Severity::Critical ) + 2 , [yaodaq::ILL](#) = static\_cast<int>( Severity::Critical ) + 3 , [yaodaq::SEGV](#) = static\_cast<int>( Severity::Critical ) + 4 , [yaodaq::INT](#) = static\_cast<int>( Severity::Warning ) + 1 , [yaodaq::TERM](#) = static\_cast<int>( Severity::Warning ) + 2 }

## 9.18 Signal.hpp

[Go to the documentation of this file.](#)

```
00001 #ifndef YAODAQ_SIGNAL
00002 #define YAODAQ_SIGNAL
00003
00008 #include "yaodaq/Severity.hpp"
00009
00010 #include <cstdint>
00011
```



```

00012 namespace yaodaq
00013 {
00014
00015 enum class Signal
00016 {
00017     NO    = 0, // No Signal.
00018     // Critical
00019     ABRT = static_cast<int>( Severity::Critical ) + 1, // (Signal Abort) Abnormal termination, such as
               is initiated by the abort function.
00020     FPE  = static_cast<int>( Severity::Critical ) + 2, // (Signal Floating-Point Exception) Erroneous
               arithmetic operation, such as zero divide or an operation resulting in overflow (not necessarily with
               a floating-point operation).
00021     ILL  = static_cast<int>( Severity::Critical ) + 3, // (Signal Illegal Instruction) Invalid function
               image, such as an illegal instruction. This is generally due to a corruption in the code or to an
               attempt to execute data.
00022     SEGV = static_cast<int>( Severity::Critical ) + 4, // (Signal Segmentation Violation) Invalid
               access to storage: When a program tries to read or write outside the memory it has allocated.
00023     // Warning
00024     INT  = static_cast<int>( Severity::Warning ) + 1, // (Signal Interrupt) Interactive attention
               signal. Generally generated by the application user.
00025     TERM = static_cast<int>( Severity::Warning ) + 2, // (Signal Terminate) Termination request sent to
               program.
00026 };
00027
00028 } // namespace yaodaq
00029
00030 #endif // YAODAQ_CLASS_HPP

```

## 9.19 yaodaq/StatusCode.hpp File Reference

```
#include <cstdint>
```

### Namespaces

- namespace `yaodaq`

### Enumerations

- enum class `yaodaq::StatusCode` : `std::int_least32_t` { `yaodaq::SUCCESS` = 0 , `yaodaq::LISTEN_ERROR` }

## 9.20 StatusCode.hpp

[Go to the documentation of this file.](#)

```

00001 #ifndef YAODAQ_STATUSCODE
00002 #define YAODAQ_STATUSCODE
00003
00008 #include <cstdint>
00009
00010 namespace yaodaq
00011 {
00012
00013 enum class StatusCode : std::int_least32_t
00014 {
00015     SUCCESS = 0,
00016     LISTEN_ERROR,
00017 };
00018
00019 }
00020
00021 #endif

```

## 9.21 yaodaq/WebsocketClient.hpp File Reference

```

#include "yaodaq/Identifier.hpp"
#include "yaodaq/Interrupt.hpp"
#include "yaodaq/LoggerHandler.hpp"
#include "yaodaq/Looper.hpp"
#include <ixwebsocket/IXWebSocket.h>
#include <memory>

```

```
#include <spdlog/spdlog.h>
#include <string>
```

## Classes

- class [yaodaq::WebsocketClient](#)

## Namespaces

- namespace [yaodaq](#)

## 9.22 WebsocketClient.hpp

[Go to the documentation of this file.](#)

```
00001 #ifndef YAODAQ_WEBSOCKETCLIENT
00002 #define YAODAQ_WEBSOCKETCLIENT
00003
00008 #include "yaodaq/Identifier.hpp"
00009 #include "yaodaq/Interrupt.hpp"
00010 #include "yaodaq/LoggerHandler.hpp"
00011 #include "yaodaq/Looper.hpp"
00012
00013 #include <ixwebsocket/IXWebSocket.h>
00014 #include <memory>
00015 #include <spdlog/spdlog.h>
00016 #include <string>
00017
00018 namespace yaodaq
00019 {
00020
00021 class WebsocketClient : public ix::WebSocket
00022 {
00023 public:
00024     explicit WebsocketClient( const std::string& name, const std::string& type =
        "DefaultWebsocketClient" );
00025     virtual ~WebsocketClient();
00026     void start();
00027     void stop();
00028     void loop();
00029     std::shared_ptr<spdlog::logger> logger() { return m_Logger.logger(); }
00030
00031 private:
00032     void onRaisingSignal();
00033     Identifier m_Identifier;
00034     LoggerHandler m_Logger;
00035     Looper m_Looper;
00036 };
00037
00038 } // namespace yaodaq
00039
00040 #endif
```

## 9.23 yaodaq/WebsocketServer.hpp File Reference

```
#include "yaodaq/Identifier.hpp"
#include "yaodaq/Interrupt.hpp"
#include "yaodaq/LoggerHandler.hpp"
#include "yaodaq/Looper.hpp"
#include <ixwebsocket/IXWebSocketServer.h>
#include <memory>
#include <spdlog/spdlog.h>
#include <string>
```

## Classes

- class [yaodaq::WebsocketServer](#)

## Namespaces

- namespace `yaodaq`

## 9.24 WebSocketServer.hpp

[Go to the documentation of this file.](#)

```
00001 #ifndef YAODAQ_WEBSOCKETSERVER
00002 #define YAODAQ_WEBSOCKETSERVER
00003
00008 #include "yaodaq/Identifier.hpp"
00009 #include "yaodaq/Interrupt.hpp"
00010 #include "yaodaq/LoggerHandler.hpp"
00011 #include "yaodaq/Looper.hpp"
00012
00013 #include <ixwebsocket/IXWebSocketServer.h>
00014 #include <memory>
00015 #include <spdlog/spdlog.h>
00016 #include <string>
00017
00018 namespace yaodaq
00019 {
00020
00021 class WebSocketServer : public ix::WebSocketServer
00022 {
00023 public:
00024     explicit WebSocketServer( const std::string& name, const int& port = ix::SocketServer::kDefaultPort,
00025                             const std::string& host = ix::SocketServer::kDefaultHost, const int& backlog =
00026                             ix::SocketServer::kDefaultTcpBacklog,
00027                             const std::size_t& maxConnections =
00028                             ix::SocketServer::kDefaultMaxConnections, const int& handshakeTimeoutSecs =
00029                             ix::WebSocketServer::kDefaultHandShakeTimeoutSecs, const int& addressFamily =
00030                             ix::SocketServer::kDefaultAddressFamily,
00031                             const std::string& type = "DefaultWebSocketServer" );
00032     virtual ~WebSocketServer();
00033     void loop();
00034     void start();
00035     void stop( bool useless = true );
00036     void listen();
00037
00038     void setVerbosity( const yaodaq::LoggerHandler::Verbosity& verbosity );
00039
00040     std::shared_ptr<spdlog::logger> logger() { return m_Logger.logger(); }
00041
00042 private:
00043     void onRaisingSignal();
00044     bool m_isListening{ false };
00045     Identifier m_Identifier;
00046     LoggerHandler m_Logger;
00047     Interrupt m_Interrupt;
00048     Looper m_Looper;
00049     bool m_isStopped{ false };
00050     bool m_isStarted{ false };
00051 };
00052
00053 } // namespace yaodaq
00054
00055 #endif // YAODAQ_WEBSOCKETSERVER
```

## 9.25 yaodaq/Exception.cpp File Reference

```
#include "yaodaq/Exception.hpp"
```

## Namespaces

- namespace `yaodaq`

## 9.26 Exception.cpp

[Go to the documentation of this file.](#)

```
00001
00005 #include "yaodaq/Exception.hpp"
00006
00007 namespace yaodaq
```

```

00008 {
00009
00010 std::string Exception::m_Format{ "\n\t[Code] : {Code}\n\t[Description] : {Description}\n\t[File] :
{File}\n\t[Function] : {Function}\n\t[Line] : {Line}\n\t[Column] : {Column}\n" };
00011
00012 fmt::text_style Exception::m_Style = { fg( fmt::color::crimson ) | fmt::emphasis::bold };
00013
00014 Exception::Exception( const StatusCode& statusCode, const std::string& description, const
source_location& location ) : source_location( location ), m_Code( static_cast<std::int_least32_t>(
statusCode ) ), m_Description( description ) { constructMessage(); }
00015
00016 const char* Exception::what() const noexcept { return m_Message.c_str(); }
00017
00018 const char* Exception::description() const noexcept { return m_Description.c_str(); }
00019
00020 int_least32_t Exception::code() const noexcept { return m_Code; }
00021
00022 void Exception::constructMessage()
00023 {
00024     m_Message = fmt::format( m_Style, m_Format, fmt::arg( "Code", m_Code ), fmt::arg( "Description",
m_Description ), fmt::arg( "File", file_name() ), fmt::arg( "Function", function_name() ), fmt::arg(
"Column", column() ), fmt::arg( "Line", line() ) );
00025 }
00026
00027 } // namespace yaodaq

```

## 9.27 yaodaq/Identifier.cpp File Reference

```

#include "yaodaq/Identifier.hpp"
#include "yaodaq/Class.hpp"
#include <fmt/color.h>
#include <magic_enum.hpp>
#include <string>

```

### Namespaces

- namespace `yaodaq`

## 9.28 Identifier.cpp

[Go to the documentation of this file.](#)

```

00001
00005 #include "yaodaq/Identifier.hpp"
00006
00007 #include "yaodaq/Class.hpp"
00008
00009 #include <fmt/color.h>
00010 #include <magic_enum.hpp>
00011 #include <string>
00012
00013 namespace yaodaq
00014 {
00015
00016 Identifier::Identifier( const Class& aClass, const std::string& type, const std::string& name ) :
m_Class( aClass ), m_Type( type ), m_Name( name ) {}
00017
00018 std::string Identifier::getClass() const { return std::string( magic_enum::enum_name( m_Class ) ); }
00019
00020 std::string Identifier::getType() const { return m_Type; }
00021
00022 std::string Identifier::getName() const { return m_Name; }
00023
00024 Class Identifier::getClassId() const { return m_Class; }
00025
00026 std::string Identifier::get() const { return fmt::format( "{0}/{1}/{2}", getClass(), getType(),
getName() ); }
00027
00028 } // namespace yaodaq

```

## 9.29 yaodaq/Interrupt.cpp File Reference

```
#include "yaodaq/Interrupt.hpp"
#include "yaodaq/Signal.hpp"
#include <atomic>
#include <csignal>
#include <mutex>
#include <thread>
```

### Namespaces

- namespace [yaodaq](#)

## 9.30 Interrupt.cpp

[Go to the documentation of this file.](#)

```
00001
00005 #include "yaodaq/Interrupt.hpp"
00006
00007 #include "yaodaq/Signal.hpp"
00008
00009 #include <atomic>
00010 #include <csignal>
00011 #include <mutex>
00012 #include <thread>
00013
00014 namespace yaodaq
00015 {
00016
00017 volatile std::atomic<Signal> Interrupt::m_Signal = Signal::NO;
00018
00019 Interrupt::Interrupt() { init(); }
00020
00021 void Interrupt::restore()
00022 {
00023     std::signal( SIGTERM, SIG_DFL );
00024     std::signal( SIGSEGV, SIG_DFL );
00025     std::signal( SIGINT, SIG_DFL );
00026     std::signal( SIGILL, SIG_DFL );
00027     std::signal( SIGABRT, SIG_DFL );
00028     std::signal( SIGFPE, SIG_DFL );
00029 }
00030
00031 void Interrupt::init()
00032 {
00033     setSignal( Signal::TERM );
00034     setSignal( Signal::TERM );
00035     setSignal( Signal::SEGV );
00036     setSignal( Signal::INT );
00037     setSignal( Signal::ILL );
00038     setSignal( Signal::ABRT );
00039     setSignal( Signal::FPE );
00040 }
00041
00042 Interrupt::~Interrupt() { restore(); }
00043
00044 Signal Interrupt::getSignal()
00045 {
00046     if( m_Signal.load() != Signal::NO )
00047     {
00048         std::lock_guard<std::mutex> guard( m_mutex );
00049         init();
00050     }
00051     return m_Signal.load();
00052 }
00053
00054 void Interrupt::setSignal( const Signal& signal )
00055 {
00056     switch( signal )
00057     {
00058         case Signal::ABRT: std::signal( SIGABRT, []( int ) -> void { m_Signal.store( Signal::ABRT ); } );
00059         break;
00059         case Signal::FPE: std::signal( SIGFPE, []( int ) -> void { m_Signal.store( Signal::FPE ); } );
00059         break;
00060         case Signal::ILL: std::signal( SIGILL, []( int ) -> void { m_Signal.store( Signal::ILL ); } );
00059         break;
```

```

00061     case Signal::SEGV: std::signal( SIGSEGV, []( int ) -> void { m_Signal.store( Signal::SEGV ); } );
    break;
00062     case Signal::INT: std::signal( SIGINT, []( int ) -> void { m_Signal.store( Signal::INT ); } );
    break;
00063     case Signal::TERM: std::signal( SIGTERM, []( int ) -> void { m_Signal.store( Signal::TERM ); } );
    break;
00064     default: break;
00065 }
00066 }
00067
00068 } // namespace yaodaq

```

## 9.31 yaodaq/LoggerHandler.cpp File Reference

```

#include "yaodaq/LoggerHandler.hpp"
#include "spdlog/spdlog.h"

```

### Namespaces

- namespace `yaodaq`

## 9.32 LoggerHandler.cpp

[Go to the documentation of this file.](#)

```

00001
00005 #include "yaodaq/LoggerHandler.hpp"
00006
00007 #include "spdlog/spdlog.h"
00008
00009 namespace yaodaq
00010 {
00011
00012 LoggerHandler::LoggerHandler() { init(); }
00013
00014 LoggerHandler::LoggerHandler( const std::string& name ) : m_Name( name ) { init(); }
00015
00016 LoggerHandler::~LoggerHandler() {}
00017
00018 void LoggerHandler::setVerbosity( const Verbosity& verbosity )
00019 {
00020     m_Verbosity = verbosity;
00021     init();
00022 }
00023
00024 void LoggerHandler::init()
00025 {
00026     m_Logger = std::make_shared<spdlog::logger>( m_Name, std::begin( m_Sinks ), std::end( m_Sinks ) );
00027     switch( m_Verbosity )
00028     {
00029     case Verbosity::Off: m_Logger->set_level( spdlog::level::off ); break;
00030     case Verbosity::Trace: m_Logger->set_level( spdlog::level::trace ); break;
00031     case Verbosity::Debug: m_Logger->set_level( spdlog::level::debug ); break;
00032     case Verbosity::Info: m_Logger->set_level( spdlog::level::info ); break;
00033     case Verbosity::Warn: m_Logger->set_level( spdlog::level::warn ); break;
00034     case Verbosity::Error: m_Logger->set_level( spdlog::level::err ); break;
00035     case Verbosity::Critical: m_Logger->set_level( spdlog::level::critical ); break;
00036     }
00037 }
00038
00039 std::shared_ptr<spdlog::logger> LoggerHandler::logger() { return std::shared_ptr<spdlog::logger>(
    m_Logger ); }
00040
00041 void LoggerHandler::addSink( const spdlog::sink_ptr& sink )
00042 {
00043     m_Sinks.push_back( sink );
00044     init();
00045 }
00046
00047 void LoggerHandler::clearSinks()
00048 {
00049     m_Sinks.clear();
00050     init();
00051 }
00052
00053 } // namespace yaodaq

```

## 9.33 yaodaq/Looper.cpp File Reference

```
#include "yaodaq/Looper.hpp"
#include <chrono>
#include <thread>
```

### Namespaces

- namespace [yaodaq](#)

## 9.34 Looper.cpp

[Go to the documentation of this file.](#)

```
00001
00005 #include "yaodaq/Looper.hpp"
00006
00007 #include <chrono>
00008 #include <thread>
00009
00010 namespace yaodaq
00011 {
00012
00013 int Looper::m_instance{ 0 };
00014
00015 Interrupt Looper::m_interrupt{ Interrupt{} };
00016
00017 int Looper::getInstance() { return m_instance; }
00018
00019 void Looper::supressInstance()
00020 {
00021     if( m_hasBeenSupressed == false )
00022     {
00023         m_hasBeenSupressed = true;
00024         m_instance--;
00025     }
00026 }
00027
00028 Looper::Looper()
00029 {
00030     if( m_hasBeenAdded == false )
00031     {
00032         m_hasBeenAdded = true;
00033         ++m_instance;
00034     }
00035 }
00036
00037 Signal Looper::loop()
00038 {
00039     static Signal signal{ yaodaq::Signal::NO };
00040     if( m_instance == 0 )
00041     {
00042         do {
00043             signal = m_interrupt.getSignal();
00044             std::this_thread::sleep_for( std::chrono::microseconds( 1 ) );
00045         } while( signal == yaodaq::Signal::NO );
00046     }
00047     return signal;
00048 }
00049
00050 Signal Looper::getSignal() { return m_interrupt.getSignal(); }
00051
00052 Looper::~~Looper()
00053 {
00054     if( m_hasBeenAdded == true && m_hasBeenSupressed == false )
00055     {
00056         m_hasBeenSupressed = true;
00057         --m_instance;
00058     }
00059 }
00060
00061 } // namespace yaodaq
```

## 9.35 yaodaq/WebsocketClient.cpp File Reference

```
#include "yaodaq/WebsocketClient.hpp"
#include <chrono>
#include <ixwebsocket/IXNetSystem.h>
#include <magic_enum.hpp>
#include <spdlog/sinks/stdout_color_sinks.h>
#include <thread>
```

### Namespaces

- namespace [yaodaq](#)

## 9.36 WebsocketClient.cpp

[Go to the documentation of this file.](#)

```
00001
00005 #include "yaodaq/WebsocketClient.hpp"
00006
00007 #include <chrono>
00008 #include <ixwebsocket/IXNetSystem.h>
00009 #include <magic_enum.hpp>
00010 #include <spdlog/sinks/stdout_color_sinks.h>
00011 #include <thread>
00012
00013 namespace yaodaq
00014 {
00015
00016 WebsocketClient::WebsocketClient( const std::string& name, const std::string& type ) : m_Identifier(
    Class::WebsocketClient, type, name ), m_Logger( m_Identifier.get() )
00017 {
00018     ix::initNetSystem();
00019     ix::WebSocketHttpHeaders header{ { "Id", m_Identifier.get() } };
00020     setExtraHeaders( header );
00021     m_Logger.addSink( std::make_shared<spdlog::sinks::stdout_color_sink_mt>() );
00022     setOnMessageCallback(
00023         [this]( const ix::WebSocketMessagePtr& msg )
00024         {
00025             if( msg->type == ix::WebSocketMessageType::Message ) { logger()->error( "{}", msg->str ); }
00026         } );
00027 }
00028
00029 WebsocketClient::~WebsocketClient()
00030 {
00031     stop();
00032     ix::uninitNetSystem();
00033 }
00034
00035 void WebsocketClient::start()
00036 {
00037     if( getReadyState() == ix::ReadyState::Closed || getReadyState() == ix::ReadyState::Closing )
00038     {
00039         logger()->trace( "Client started. Connected to {}", getUrl() );
00040         ix::WebSocket::start();
00041     }
00042 }
00043
00044 void WebsocketClient::stop()
00045 {
00046     if( getReadyState() == ix::ReadyState::Open || getReadyState() == ix::ReadyState::Connecting )
00047     {
00048         logger()->trace( "Client stopped" );
00049         ix::WebSocket::stop();
00050         while( getReadyState() != ix::ReadyState::Closed ) { std::this_thread::sleep_for(
            std::chrono::microseconds( 1 ) ); }
00051     }
00052 }
00053
00054 void WebsocketClient::loop()
00055 {
00056     WebsocketClient::start();
00057     m_Looper.supressInstance();
00058     onRaisingSignal();
00059 }
00060
00061 void WebsocketClient::onRaisingSignal()
00062 {
```



```

00063     Signal signal = m_Looper.loop();
00064     if( m_Looper.getInstance() == 0 )
00065     {
00066         int value = magic_enum::enum_integer( signal );
00067         if( value >= magic_enum::enum_integer( yaodaq::Severity::Critical ) ) { logger()->critical(
"Signal SIG{} raised !", magic_enum::enum_name( signal ) ); }
00068         else if( value >= magic_enum::enum_integer( yaodaq::Severity::Error ) )
00069         {
00070             logger()->error( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00071         }
00072         else if( value >= magic_enum::enum_integer( yaodaq::Severity::Warning ) )
00073         {
00074             fmt::print( "\n" );
00075             logger()->warn( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00076         }
00077         else if( value >= magic_enum::enum_integer( yaodaq::Severity::Info ) )
00078         {
00079             fmt::print( "\n" );
00080             logger()->info( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00081         }
00082         else
00083         {
00084             fmt::print( "\n" );
00085             logger()->trace( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00086         }
00087         if( magic_enum::enum_integer( signal ) >= magic_enum::enum_integer( Severity::Critical ) )
std::exit( magic_enum::enum_integer( signal ) );
00088     }
00089 }
00090
00091 } // namespace yaodaq

```

## 9.37 yaodaq/WebsocketServer.cpp File Reference

```

#include "yaodaq/WebsocketServer.hpp"
#include "yaodaq/Exception.hpp"
#include "yaodaq/StatusCode.hpp"
#include <iostream>
#include <ixwebsocket/IXNetSystem.h>
#include <magic_enum.hpp>
#include <spdlog/sinks/stdout_color_sinks.h>
#include <spdlog/spdlog.h>
#include <string>
#include <thread>
#include <utility>

```

### Namespaces

- namespace [yaodaq](#)

## 9.38 WebsocketServer.cpp

[Go to the documentation of this file.](#)

```

00001
00005 #include "yaodaq/WebsocketServer.hpp"
00006
00007 #include "yaodaq/Exception.hpp"
00008 #include "yaodaq/StatusCode.hpp"
00009
00010 #include <iostream>
00011 #include <ixwebsocket/IXNetSystem.h>
00012 #include <magic_enum.hpp>
00013 #include <spdlog/sinks/stdout_color_sinks.h>
00014 #include <spdlog/spdlog.h>
00015 #include <string>
00016 #include <thread>
00017 #include <utility>
00018
00019 namespace yaodaq
00020 {
00021

```

```

00022 WebsocketServer::WebsocketServer( const std::string& name, const int& port, const std::string& host,
    const int& backlog, const std::size_t& maxConnections, const int& handshakeTimeoutSecs, const int&
    addressFamily, const std::string& type ) :
00023     ix::WebSocketServer( port, host, backlog, maxConnections, handshakeTimeoutSecs, addressFamily ),
    m_Identifier( Class::WebsocketServer, type, name ), m_Logger( m_Identifier.get() )
00024 {
00025     ix::initNetSystem();
00026     m_Logger.addSink( std::make_shared<spdlog::sinks::stdout_color_sink_mt>() );
00027     setOnClientMessageCallback(
00028         []( std::shared_ptr<ix::ConnectionState> connectionState, ix::WebSocket& websocket, const
    ix::WebSocketMessagePtr& msg )
00029         {
00030             // The ConnectionState object contains information about the connection,
00031             // at this point only the client ip address and the port.
00032             std::cout << "Remote ip: " << connectionState->getRemoteIp() << std::endl;
00033
00034             if( msg->type == ix::WebSocketMessageType::Open )
00035             {
00036                 std::cout << "New connection" << std::endl;
00037
00038                 // A connection state object is available, and has a default id
00039                 // You can subclass ConnectionState and pass an alternate factory
00040                 // to override it. It is useful if you want to store custom
00041                 // attributes per connection (authenticated bool flag, attributes, etc...)
00042                 std::cout << "id: " << connectionState->getId() << std::endl;
00043
00044                 // The uri the client did connect to.
00045                 std::cout << "Uri: " << msg->openInfo.uri << std::endl;
00046
00047                 std::cout << "Headers:" << std::endl;
00048                 for( auto it: msg->openInfo.headers ) { std::cout << "\t" << it.first << ": " << it.second <<
    std::endl; }
00049             }
00050             else if( msg->type == ix::WebSocketMessageType::Message )
00051             {
00052                 // For an echo server, we just send back to the client whatever was received by the server
00053                 // All connected clients are available in an std::set. See the broadcast cpp example.
00054                 // Second parameter tells whether we are sending the message in binary or text mode.
00055                 // Here we send it in the same mode as it was received.
00056                 std::cout << "Received: " << msg->str << std::endl;
00057
00058                 websocket.send( msg->str, msg->binary );
00059             }
00060         } );
00061 }
00062
00063 void WebsocketServer::listen()
00064 {
00065     if( !m_isListening )
00066     {
00067         std::pair<bool, std::string> ret = ix::WebSocketServer::listen();
00068         if( ret.first )
00069         {
00070             m_isListening = ret.first;
00071             logger()->info( "Server listening on host {0} port {1}", getHost(), getPort() );
00072         }
00073         else
00074             throw Exception( StatusCode::LISTEN_ERROR, ret.second );
00075     }
00076 }
00077
00078 void WebsocketServer::start()
00079 {
00080     if( !m_isStarted )
00081     {
00082         m_isStarted = true;
00083         logger()->trace( "Server started" );
00084         ix::WebSocketServer::start();
00085     }
00086 }
00087
00088 void WebsocketServer::stop( bool useless )
00089 {
00090     if( !m_isStopped )
00091     {
00092         m_isStopped = true;
00093         useless = !useless;
00094         logger()->trace( "Server stopped" );
00095         ix::WebSocketServer::stop();
00096     }
00097 }
00098
00099 void WebsocketServer::setVerbosity( const yaodag::LoggerHandler::Verbosity& verbosity ) {
    m_Logger.setVerbosity( verbosity ); }
00100
00101 WebsocketServer::~WebsocketServer()
00102 {

```

```
00103     stop();
00104     ix::uninitNetSystem();
00105 }
00106
00107 void WebsocketServer::loop()
00108 {
00109     listen();
00110     start();
00111     m_Looper.supressInstance();
00112     onRaisingSignal();
00113 }
00114
00115 void WebsocketServer::onRaisingSignal()
00116 {
00117     Signal signal = m_Looper.loop();
00118     if( m_Looper.getInstance() == 0 )
00119     {
00120         int value = magic_enum::enum_integer( signal );
00121         if( value >= magic_enum::enum_integer( yaodag::Severity::Critical ) ) { logger()->critical(
00122 "Signal SIG{} raised !", magic_enum::enum_name( signal ) ); }
00123         else if( value >= magic_enum::enum_integer( yaodag::Severity::Error ) )
00124         {
00125             logger()->error( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00126         }
00127         else if( value >= magic_enum::enum_integer( yaodag::Severity::Warning ) )
00128         {
00129             fmt::print( "\n" );
00130             logger()->warn( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00131         }
00132         else if( value >= magic_enum::enum_integer( yaodag::Severity::Info ) )
00133         {
00134             fmt::print( "\n" );
00135             logger()->info( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00136         }
00137         else
00138         {
00139             fmt::print( "\n" );
00140             logger()->trace( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00141         }
00142         if( magic_enum::enum_integer( signal ) >= magic_enum::enum_integer( Severity::Critical ) )
00143             std::exit( magic_enum::enum_integer( signal ) );
00144     }
00145 } // namespace yaodag
```

