



YAODAQ

Y e t A n O t h e r D A Q

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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:

spdlog	19
yaodaq	19

Chapter 4

Hierarchical Index

4.1 Class Hierarchy

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

ix::ConnectionState	
yaodaq::ConnectionState	28
std::exception	
yaodaq::Exception	34
yaodaq::Identifier	39
yaodaq::Interrupt	41
yaodaq::Key	45
yaodaq::LoggerHandler	47
yaodaq::Looper	49
yaodaq::Message	50
yaodaq::IXMessage	42
yaodaq::Close	25
yaodaq::Error	30
yaodaq::Fragment	35
yaodaq::Open	54
yaodaq::Ping	58
yaodaq::Pong	61
source_location	
yaodaq::Exception	34
semver::version	
yaodaq::Version	64
ix::WebSocket	
yaodaq::WebsocketClient	66
ix::WebSocketServer	
yaodaq::WebsocketServer	69

Chapter 5

Data Structure Index

5.1 Data Structures

Here are the data structures with brief descriptions:

yaodag::Close	25
yaodag::ConnectionState	28
yaodag::Error	30
yaodag::Exception	34
yaodag::Fragment	35
yaodag::Identifier	39
yaodag::Interrupt	41
yaodag::IXMessage	42
yaodag::Key	45
yaodag::LoggerHandler	47
yaodag::Looper	49
yaodag::Message	50
yaodag::Open	54
yaodag::Ping	58
yaodag::Pong	61
yaodag::Version	64
yaodag::WebsocketClient	66
yaodag::WebsocketServer	69

Chapter 6

File Index

6.1 File List

Here is a list of all files with brief descriptions:

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yaodag/ConnectionState.hpp	76
yaodag/Exception.hpp	77
yaodag/Identifier.hpp	78
yaodag/Interrupt.hpp	78
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yaodag/Message.cpp	97
yaodag/Version.cpp	99
yaodag/WebsocketClient.cpp	99
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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

Data Structures

- class [Close](#)
- class [ConnectionState](#)
- class [Error](#)
- class [Exception](#)
- class [Fragment](#)
- class [Identifier](#)
- class [Interrupt](#)
- class [IXMessage](#)
- class [Key](#)
- class [LoggerHandler](#)
- class [Looper](#)
- class [Message](#)
- class [Open](#)
- class [Ping](#)
- class [Pong](#)
- class [Version](#)
- class [WebsocketClient](#)
- class [WebsocketServer](#)

Enumerations

- enum class [Domain](#) : std::uint_least8_t { [Unknown](#) = 0 , [Application](#) = 1 , [Web](#) = 2 }
- enum class [Class](#) : std::uint_least8_t { [Unknown](#) = 0 , [Server](#) , [Client](#) , [Module](#) , [Board](#) }
- enum class [Family](#) : std::uint_least16_t { [Unknown](#) = 0 , [WebSocketServer](#) , [WebSocketClient](#) , [Logger](#) , [Controller](#) , [Configurator](#) , [SlowController](#) , [Viewer](#) , [Analyser](#) , [FileWriter](#) }
- enum class [MessageType](#) : std::int_least16_t { [Open](#) = -1 , [Close](#) = -2 , [Error](#) = -3 , [Ping](#) = -4 , [Pong](#) = -5 , [Fragment](#) = -6 , [Unknown](#) = 0 }
- 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](#) , [WRONG_NUMBER_PARAMETERS](#) , [CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED](#) = 4999 }

Functions

- std::ostream & [operator<<](#) (std::ostream &os, const [MessageType](#) &messageTypes)

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::uint_least8_t [strong]
```

Enumerator

Unknown	
Server	
Client	
Module	
Board	

Definition at line 22 of file [Classification.hpp](#).

```
00023 {
00024     Unknown = 0,
00025     Server,
00026     Client,
00027     // Module is a client with start stop etc...
00028     Module,
00029     // Board is a module with a connector
00030     Board,
00031 };
```


7.2.2.2 Domain

```
enum class yaodaq::Domain : std::uint_least8_t [strong]
```

Enumerator

Unknown	
Application	
Web	

Definition at line 14 of file [Classification.hpp](#).

```
00015 {
00016     Unknown    = 0,
00017     Application = 1,
00018     Web        = 2,
00019 };
```

7.2.2.3 Family

```
enum class yaodaq::Family : std::uint_least16_t [strong]
```

Enumerator

Unknown	
WebSocketServer	
WebSocketClient	
Logger	
Controller	
Configurator	
SlowController	
Viewer	
Analyser	
FileWriter	

Definition at line 34 of file [Classification.hpp](#).

```
00035 {
00036     Unknown = 0,
00037     WebSocketServer,
00038     WebSocketClient,
00039     Logger,
00040     Controller,
00041     Configurator,
00042     SlowController,
00043     Viewer,
00044     Analyser,
00045     FileWriter,
00046 };
```

7.2.2.4 MessageType

```
enum class yaodaq::MessageType : std::int_least16_t [strong]
```

Enumerator

Open	
Close	
Error	
Ping	
Pong	
Fragment	
Unknown	

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

```
00016 {
00017     // IXWebSocket MessageType (Message is not set here)
00018     Open      = -1,
00019     Close     = -2,
00020     Error     = -3,
00021     Ping      = -4,
00022     Pong      = -5,
00023     Fragment  = -6,
00024     // Unknown should not be used !
00025     Unknown   = 0,
00026 };
```

7.2.2.5 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 };
```

7.2.2.6 Signal

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

Enumerator

NO	
ABRT	
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 };
```

7.2.2.7 StatusCode

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

Enumerator

SUCCESS	
LISTEN_ERROR	
WRONG_NUMBER_PARAMETERS	
CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED	

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

```
00014 {  
00015     SUCCESS = 0,  
00016     LISTEN_ERROR,  
00017     WRONG_NUMBER_PARAMETERS,  
00018     CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED = 4999,  
00019 };
```

7.2.3 Function Documentation

7.2.3.1 operator<<()

```
std::ostream & yaodaq::operator<< (  
    std::ostream & os,  
    const MessageType & messageTypes ) [inline]
```

Definition at line 28 of file [MessageType.hpp](#).

```
00028 { return os << static_cast<std::int_least8_t>( messageTypes ); }
```

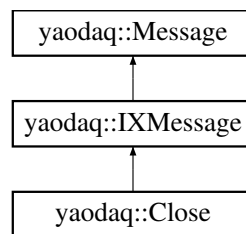

Chapter 8

Data Structure Documentation

8.1 yaodaq::Close Class Reference

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

Inheritance diagram for yaodaq::Close:



Public Member Functions

- [Close](#) (const ix::WebSocketCloseInfo &closeInfo)
- [Close](#) (const ix::WebSocketCloseInfo &closeInfo, std::shared_ptr< [ConnectionState](#) > &connectionState)
- std::uint16_t [getCode](#) () const
- std::string [getReason](#) () const
- bool [getRemote](#) () const
- std::string [dump](#) (const int &indent=-1, const char &indent_char=' ', const bool &ensure_ascii=false, const nlohmann::detail::error_handler_t &error_handler=nlohmann::detail::error_handler_t::strict) const
- nlohmann::json [get](#) () const
- nlohmann::json [getContent](#) () const
- std::string [getTypeName](#) () const
- [MessageType](#) [getTypeValue](#) () const
- std::string [getTimestamp](#) () const
- std::time_t [getTime](#) () const
- [Identifier](#) [getIdentifier](#) () const
- void [setFrom](#) (const [Identifier](#) &)

Protected Member Functions

- void [setConnectionStateInfos](#) (std::shared_ptr< [ConnectionState](#) > &connectionState)
- void [setContent](#) (const nlohmann::json &content)
- void [setContent](#) (const std::string &content)
- void [setContent](#) (const char *content)

8.1.1 Detailed Description

Definition at line 41 of file [IXWebsocketMessage.hpp](#).

8.1.2 Constructor & Destructor Documentation

8.1.2.1 Close() [1/2]

```
yaodag::Close::Close (
    const ix::WebSocketCloseInfo & closeInfo ) [explicit]
```

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

```
00044 : IXMessage( MessageType::Close )
00045 {
00046     nlohmann::json j;
00047     j["code"] = closeInfo.code;
00048     j["reason"] = closeInfo.reason;
00049     j["remote"] = closeInfo.remote;
00050     setContent( j );
00051 }
```

8.1.2.2 Close() [2/2]

```
yaodag::Close::Close (
    const ix::WebSocketCloseInfo & closeInfo,
    std::shared_ptr< ConnectionState > & connectionState )
```

Definition at line 53 of file [IXWebSocketMessage.cpp](#).

```
00053 : Close( closeInfo ) { setConnectionStateInfos( connectionState ); }
```

8.1.3 Member Function Documentation

8.1.3.1 dump()

```
std::string yaodag::Message::dump (
    const int & indent = -1,
    const char & indent_char = ' ',
    const bool & ensure_ascii = false,
    const nlohmann::detail::error_handler_t & error_handler = nlohmann::detail::
:error_handler_t::strict ) const [inherited]
```

Definition at line 59 of file [Message.cpp](#).

```
00059 { return m_JSON.dump( indent, indent_char, ensure_ascii, error_handler ); }
```

8.1.3.2 get()

```
nlohmann::json yaodag::Message::get ( ) const [inherited]
```

Definition at line 61 of file [Message.cpp](#).

```
00061 { return m_JSON; }
```

8.1.3.3 getCode()

```
std::uint16_t yaodag::Close::getCode ( ) const
```

Definition at line 55 of file [IXWebSocketMessage.cpp](#).

```
00055 { return get()["content"]["code"].get<std::uint16_t>(); }
```

8.1.3.4 getContent()

```
nlohmann::json yaodag::Message::getContent ( ) const [inherited]
```

Definition at line 67 of file [Message.cpp](#).

```
00067 { return m_JSON["content"]; }
```

8.1.3.5 getIdentifier()

`Identifier yaodaq::Message::getIdentifier () const [inherited]`

Definition at line 89 of file [Message.cpp](#).

```

00090 {
00091     if( m_JSON["from"].is_null() ) return {};
00092     else
00093     {
00094         Identifier id( m_JSON["from"]["type"].get<std::string>(),
00095             m_JSON["from"]["name"].get<std::string>() );
00096         id.generateKey( magic_enum::enum_cast<Domain>( m_JSON["from"]["domain"].get<std::string>()
00097             ).value(), magic_enum::enum_cast<Class>( m_JSON["from"]["class"].get<std::string>() ).value(),
00098             magic_enum::enum_cast<Family>( m_JSON["from"]["family"].get<std::string>()
00099             ).value() );
00097         return id;
00098     }
00099 }

```

8.1.3.6 getReason()

`std::string yaodaq::Close::getReason () const`

Definition at line 56 of file [IXWebsocketMessage.cpp](#).

```

00056 { return get()["content"]["reason"].get<std::string>(); }

```

8.1.3.7 getRemote()

`bool yaodaq::Close::getRemote () const`

Definition at line 57 of file [IXWebsocketMessage.cpp](#).

```

00057 { return get()["content"]["remote"].get<bool>(); }

```

8.1.3.8 getTime()

`std::time_t yaodaq::Message::getTime () const [inherited]`

Definition at line 71 of file [Message.cpp](#).

```

00072 {
00073     std::tm tm;
00074     memset( &tm, 0, sizeof( tm ) );
00075     std::stringstream ss( getTimestamp() );
00076     ss >> std::get_time( &tm, "%Y-%m-%d %H:%M:%S %z" );
00077     return mktime( &tm );
00078 }

```

8.1.3.9 getTimestamp()

`std::string yaodaq::Message::getTimestamp () const [inherited]`

Definition at line 69 of file [Message.cpp](#).

```

00069 { return m_JSON["timestamp"].get<std::string>(); }

```

8.1.3.10 getTypeName()

`std::string yaodaq::Message::getTypeName () const [inherited]`

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

```

00063 { return m_JSON["type"].get<std::string>(); }

```

8.1.3.11 getTypeValue()

`MessageType yaodaq::Message::getTypeValue () const [inherited]`

Definition at line 65 of file [Message.cpp](#).

```

00065 { return magic_enum::enum_cast<MessageType>( m_JSON["type"].get<std::string>() ).value(); }

```

8.1.3.12 setConnectionStateInfos()

```
void yaodaq::IXMessage::setConnectionStateInfos (
    std::shared_ptr< ConnectionState > & connectionState ) [protected], [inherited]
```

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

```
00013 {
00014     nlohmann::json j = getContent();
00015     j["id"] = connectionState->getId();
00016     j["remote_ip"] = connectionState->getRemoteIp();
00017     j["remote_port"] = connectionState->getRemotePort();
00018     setContent( j );
00019 }
```

8.1.3.13 setContent() [1/3]

```
void yaodaq::Message::setContent (
    const char * content ) [protected], [inherited]
```

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

```
00048 {
00049     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00050     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00051     }*/
```

8.1.3.14 setContent() [2/3]

```
void yaodaq::Message::setContent (
    const nlohmann::json & content ) [protected], [inherited]
```

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

```
00039 { m_JSON["content"] = static\_cast<nlohmann::json>( content ); }
```

8.1.3.15 setContent() [3/3]

```
void yaodaq::Message::setContent (
    const std::string & content ) [protected], [inherited]
```

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

```
00042 {
00043     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00044     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00045     }*/
```

8.1.3.16 setFrom()

```
void yaodaq::Message::setFrom (
    const Identifier & identifier ) [inherited]
```

Definition at line 80 of file [Message.cpp](#).

```
00081 {
00082     m_JSON["from"]["name"] = identifier.getName();
00083     m_JSON["from"]["type"] = identifier.getType();
00084     m_JSON["from"]["family"] = identifier.getFamily();
00085     m_JSON["from"]["class"] = identifier.getClass();
00086     m_JSON["from"]["domain"] = identifier.getDomain();
00087 }
```

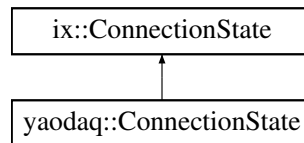
The documentation for this class was generated from the following files:

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

8.2 yaodaq::ConnectionState Class Reference

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

Inheritance diagram for yaodaq::ConnectionState:



Public Member Functions

- virtual void [computeId](#) (const std::string &host, const [Identifier](#) &id) final
- [ConnectionState](#) ()
- virtual [~ConnectionState](#) ()

8.2.1 Detailed Description

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

8.2.2 Constructor & Destructor Documentation

8.2.2.1 ConnectionState()

yaodag::ConnectionState::ConnectionState ()

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

```
00014 : ix::ConnectionState() {}
```

8.2.2.2 ~ConnectionState()

yaodag::ConnectionState::~~ConnectionState () [virtual]

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

```
00017 {
00018     std::lock_guard<std::mutex> guard( m_Mutex );
00019     m_Ids.remove( m_Pair );
00020 }
```

8.2.3 Member Function Documentation

8.2.3.1 computeId()

```
void yaodag::ConnectionState::computeId (
    const std::string & host,
    const Identifier & id ) [final], [virtual]
```

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

```
00023 {
00024     std::lock_guard<std::mutex> guard( m_Mutex );
00025     m_Pair = std::pair<std::string, std::string>( host, id.getName() );
00026
00027     if( id.empty() ) { _id = std::to_string( _globalId++ ); }
00028     else
00029     {
00030         std::list<std::pair<std::string, std::string>::iterator found = std::find( m_Ids.begin(),
m_Ids.end(), m_Pair );
00031         if( found == m_Ids.end() )
00032         {
00033             _id = id.getName();
00034             m_Ids.push_back( m_Pair );
00035         }
00036         else
00037         {
00038             setTerminated();
00039         }
00040     }
00041 }
```

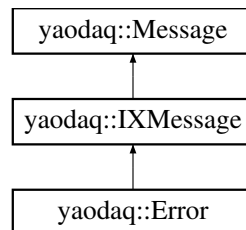
The documentation for this class was generated from the following files:

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

8.3 yaodaq::Error Class Reference

#include <yaodaq/IXWebsocketMessage.hpp>

Inheritance diagram for yaodaq::Error:



Public Member Functions

- [Error](#) (const ix::WebSocketErrorInfo &errorInfo)
- [Error](#) (const ix::WebSocketErrorInfo &errorInfo, std::shared_ptr< [ConnectionState](#) > &connectionState)
- std::uint16_t [getRetries](#) () const
- double [getWaitTime](#) () const
- int [getHttpStatus](#) () const
- std::string [getReason](#) () const
- bool [getDecompressionError](#) () const
- std::string [dump](#) (const int &indent=-1, const char &indent_char=' ', const bool &ensure_ascii=false, const nlohmann::detail::error_handler_t &error_handler=nlohmann::detail::error_handler_t::strict) const
- nlohmann::json [get](#) () const
- nlohmann::json [getContent](#) () const
- std::string [getTypeName](#) () const
- [MessageType](#) [getTypeValue](#) () const
- std::string [getTimestamp](#) () const
- std::time_t [getTime](#) () const
- [Identifier](#) [getIdentifier](#) () const
- void [setFrom](#) (const [Identifier](#) &)

Protected Member Functions

- void [setConnectionStateInfos](#) (std::shared_ptr< [ConnectionState](#) > &connectionState)
- void [setContent](#) (const nlohmann::json &content)
- void [setContent](#) (const std::string &content)
- void [setContent](#) (const char *content)

8.3.1 Detailed Description

Definition at line 51 of file [IXWebsocketMessage.hpp](#).

8.3.2 Constructor & Destructor Documentation

8.3.2.1 Error() [1/2]

```
yaodag::Error::Error (
    const ix::WebSocketErrorInfo & errorInfo ) [explicit]
```

Definition at line 60 of file [IXWebSocketMessage.cpp](#).

```
00060                                     : IXMessage( MessageType::Error )
00061 {
00062     nlohmann::json j;
00063     j["retries"] = errorInfo.retries;
00064     j["wait_time"] = errorInfo.wait_time;
00065     j["http_status"] = errorInfo.http_status;
00066     j["reason"] = errorInfo.reason;
00067     j["decompression_error"] = errorInfo.decompressionError;
00068     setContent( j );
00069 }
```

8.3.2.2 Error() [2/2]

```
yaodag::Error::Error (
    const ix::WebSocketErrorInfo & errorInfo,
    std::shared_ptr< ConnectionState > & connectionState )
```

Definition at line 71 of file [IXWebSocketMessage.cpp](#).

```
00071 : Error( errorInfo ) { setConnectionStateInfos( connectionState ); }
```

8.3.3 Member Function Documentation

8.3.3.1 dump()

```
std::string yaodag::Message::dump (
    const int & indent = -1,
    const char & indent_char = ' ',
    const bool & ensure_ascii = false,
    const nlohmann::detail::error_handler_t & error_handler = nlohmann::detail::
:error_handler_t::strict ) const [inherited]
```

Definition at line 59 of file [Message.cpp](#).

```
00059 { return m_JSON.dump( indent, indent_char, ensure_ascii, error_handler ); }
```

8.3.3.2 get()

```
nlohmann::json yaodag::Message::get ( ) const [inherited]
```

Definition at line 61 of file [Message.cpp](#).

```
00061 { return m_JSON; }
```

8.3.3.3 getContent()

```
nlohmann::json yaodag::Message::getContent ( ) const [inherited]
```

Definition at line 67 of file [Message.cpp](#).

```
00067 { return m_JSON["content"]; }
```

8.3.3.4 getDecompressionError()

```
bool yaodag::Error::getDecompressionError ( ) const
```

Definition at line 81 of file [IXWebSocketMessage.cpp](#).

```
00081 { return get()["content"]["decompression_error"].get<bool>(); }
```

8.3.3.5 getHttpStatus()

```
int yaodaq::Error::getHttpStatus ( ) const
```

Definition at line 77 of file [IXWebsocketMessage.cpp](#).

```
00077 { return get()["content"]["http_status"].get<int>(); }
```

8.3.3.6 getIdentifier()

```
Identifier yaodaq::Message::getIdentifier ( ) const [inherited]
```

Definition at line 89 of file [Message.cpp](#).

```
00090 {
00091     if( m_JSON["from"].is_null() ) return {};
00092     else
00093     {
00094         Identifier id( m_JSON["from"]["type"].get<std::string>(),
00095             m_JSON["from"]["name"].get<std::string>() );
00096         id.generateKey( magic_enum::enum_cast<Domain>( m_JSON["from"]["domain"].get<std::string>() ).value(),
00097             magic_enum::enum_cast<Class>( m_JSON["from"]["class"].get<std::string>() ).value(),
00098             magic_enum::enum_cast<Family>( m_JSON["from"]["family"].get<std::string>() ).value() );
00099         return id;
00100     }
00101 }
```

8.3.3.7 getReason()

```
std::string yaodaq::Error::getReason ( ) const
```

Definition at line 79 of file [IXWebsocketMessage.cpp](#).

```
00079 { return get()["content"]["reason"].get<std::string>(); }
```

8.3.3.8 getRetries()

```
std::uint16_t yaodaq::Error::getRetries ( ) const
```

Definition at line 73 of file [IXWebsocketMessage.cpp](#).

```
00073 { return get()["content"]["retries"].get<std::uint16_t>(); }
```

8.3.3.9 getTime()

```
std::time_t yaodaq::Message::getTime ( ) const [inherited]
```

Definition at line 71 of file [Message.cpp](#).

```
00072 {
00073     std::tm tm;
00074     memset( &tm, 0, sizeof( tm ) );
00075     std::stringstream ss( getTimestamp() );
00076     ss >> std::get_time( &tm, "%Y-%m-%d %H:%M:%S %z" );
00077     return mktime( &tm );
00078 }
```

8.3.3.10 getTimestamp()

```
std::string yaodaq::Message::getTimestamp ( ) const [inherited]
```

Definition at line 69 of file [Message.cpp](#).

```
00069 { return m_JSON["timestamp"].get<std::string>(); }
```

8.3.3.11 getTypeName()

```
std::string yaodaq::Message::getTypeName ( ) const [inherited]
```

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

```
00063 { return m_JSON["type"].get<std::string>(); }
```

8.3.3.12 getTypeValue()

`MessageType yaodag::Message::getTypeValue () const` [inherited]

Definition at line 65 of file [Message.cpp](#).

```
00065 { return magic_enum::enum_cast<MessageType>( m_JSON["type"].get<std::string>() ).value(); }
```

8.3.3.13 getWaitTime()

`double yaodag::Error::getWaitTime () const`

Definition at line 75 of file [IXWebsocketMessage.cpp](#).

```
00075 { return get()["content"]["wait_time"].get<double>(); }
```

8.3.3.14 setConnectionStateInfos()

`void yaodag::IXMessage::setConnectionStateInfos (`
`std::shared_ptr< ConnectionState > & connectionState)` [protected], [inherited]

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

```
00013 {
00014     nlohmann::json j = getContent();
00015     j["id"]           = connectionState->getId();
00016     j["remote_ip"]    = connectionState->getRemoteIp();
00017     j["remote_port"]  = connectionState->getRemotePort();
00018     setContent( j );
00019 }
```

8.3.3.15 setContent() [1/3]

`void yaodag::Message::setContent (`
`const char * content)` [protected], [inherited]

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

```
00048 {
00049     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00050     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00051     }*/
00051 }
```

8.3.3.16 setContent() [2/3]

`void yaodag::Message::setContent (`
`const nlohmann::json & content)` [protected], [inherited]

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

```
00039 { m_JSON["content"] = static_cast<nlohmann::json>( content ); }
```

8.3.3.17 setContent() [3/3]

`void yaodag::Message::setContent (`
`const std::string & content)` [protected], [inherited]

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

```
00042 {
00043     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00044     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00045     }*/
00045 }
```

8.3.3.18 setFrom()

`void yaodag::Message::setFrom (`
`const Identifier & identifier)` [inherited]

Definition at line 80 of file [Message.cpp](#).

```
00081 {
00082     m_JSON["from"]["name"] = identifier.getName();
00082 }
```

```

00083     m_JSON["from"]["type"]   = identifier.getType();
00084     m_JSON["from"]["family"] = identifier.getFamily();
00085     m_JSON["from"]["class"]  = identifier.getClass();
00086     m_JSON["from"]["domain"] = identifier.getDomain();
00087 }

```

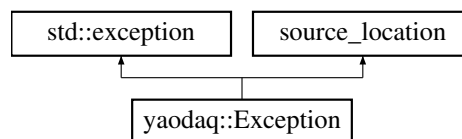
The documentation for this class was generated from the following files:

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

8.4 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={})

8.4.1 Detailed Description

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

8.4.2 Constructor & Destructor Documentation

8.4.2.1 Exception() [1/2]

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

8.4.2.2 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(); }

```

8.4.2.3 ~Exception()

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

8.4.3 Member Function Documentation

8.4.3.1 code()

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

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

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

8.4.3.2 description()

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

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

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

8.4.3.3 setFormat()

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

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

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

8.4.3.4 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; }
```

8.4.3.5 what()

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

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

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

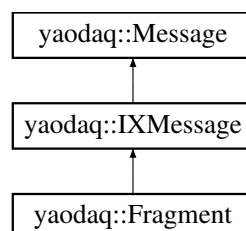
The documentation for this class was generated from the following files:

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

8.5 yaodaq::Fragment Class Reference

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

Inheritance diagram for yaodaq::Fragment:



Public Member Functions

- [Fragment](#) (const ix::WebSocketMessagePtr &fragment)
- [Fragment](#) (const ix::WebSocketMessagePtr &fragment, std::shared_ptr< [ConnectionState](#) > &connectionState)
- std::string [dump](#) (const int &indent=-1, const char &indent_char=' ', const bool &ensure_ascii=false, const nlohmann::detail::error_handler_t &error_handler=nlohmann::detail::error_handler_t::strict) const
- nlohmann::json [get](#) () const
- nlohmann::json [getContent](#) () const
- std::string [getTypeName](#) () const
- [MessageType](#) [getTypeValue](#) () const
- std::string [getTimestamp](#) () const
- std::time_t [getTime](#) () const
- [Identifier](#) [getIdentifier](#) () const
- void [setFrom](#) (const [Identifier](#) &)

Protected Member Functions

- void [setConnectionStateInfos](#) (std::shared_ptr< [ConnectionState](#) > &connectionState)
- void [setContent](#) (const nlohmann::json &content)
- void [setContent](#) (const std::string &content)
- void [setContent](#) (const char *content)

8.5.1 Detailed Description

Definition at line 77 of file [IXWebSocketMessage.hpp](#).

8.5.2 Constructor & Destructor Documentation

8.5.2.1 Fragment() [1/2]

```
yaodaq::Fragment::Fragment (
    const ix::WebSocketMessagePtr & fragment ) [explicit]
```

Definition at line 94 of file [IXWebSocketMessage.cpp](#).

```
00094 : IXMessage( MessageType::Fragment ) {}
```

8.5.2.2 Fragment() [2/2]

```
yaodaq::Fragment::Fragment (
    const ix::WebSocketMessagePtr & fragment,
    std::shared_ptr< ConnectionState > & connectionState )
```

Definition at line 96 of file [IXWebSocketMessage.cpp](#).

```
00096 : Fragment( fragment ) { setConnectionStateInfos( connectionState ); }
```

8.5.3 Member Function Documentation

8.5.3.1 dump()

```
std::string yaodaq::Message::dump (
    const int & indent = -1,
    const char & indent_char = ' ',
    const bool & ensure_ascii = false,
    const nlohmann::detail::error_handler_t & error_handler = nlohmann::detail::
:error_handler_t::strict ) const [inherited]
```


Definition at line 59 of file [Message.cpp](#).

```
00059 { return m_JSON.dump( indent, indent_char, ensure_ascii, error_handler ); }
```

8.5.3.2 get()

nlohmann::json yaodaq::Message::get () const [inherited]

Definition at line 61 of file [Message.cpp](#).

```
00061 { return m_JSON; }
```

8.5.3.3 getContent()

nlohmann::json yaodaq::Message::getContent () const [inherited]

Definition at line 67 of file [Message.cpp](#).

```
00067 { return m_JSON["content"]; }
```

8.5.3.4 getIdentifier()

Identifier yaodaq::Message::getIdentifier () const [inherited]

Definition at line 89 of file [Message.cpp](#).

```
00090 {
00091     if( m_JSON["from"].is_null() ) return {};
00092     else
00093     {
00094         Identifier id( m_JSON["from"]["type"].get<std::string>(),
00095             m_JSON["from"]["name"].get<std::string>() );
00096         id.generateKey( magic_enum::enum_cast<Domain>( m_JSON["from"]["domain"].get<std::string>()
00097             ).value(), magic_enum::enum_cast<Class>( m_JSON["from"]["class"].get<std::string>() ).value(),
00098             magic_enum::enum_cast<Family>( m_JSON["from"]["family"].get<std::string>()
00099             ).value() );
00097         return id;
00098     }
00099 }
```

8.5.3.5 getTime()

std::time_t yaodaq::Message::getTime () const [inherited]

Definition at line 71 of file [Message.cpp](#).

```
00072 {
00073     std::tm tm;
00074     memset( &tm, 0, sizeof( tm ) );
00075     std::stringstream ss( getTimestamp() );
00076     ss >> std::get_time( &tm, "%Y-%m-%d %H:%M:%S %z" );
00077     return mktime( &tm );
00078 }
```

8.5.3.6 getTimestamp()

std::string yaodaq::Message::getTimestamp () const [inherited]

Definition at line 69 of file [Message.cpp](#).

```
00069 { return m_JSON["timestamp"].get<std::string>(); }
```

8.5.3.7 getTypeName()

std::string yaodaq::Message::getTypeName () const [inherited]

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

```
00063 { return m_JSON["type"].get<std::string>(); }
```

8.5.3.8 getTypeValue()

MessageType yaodaq::Message::getTypeValue () const [inherited]

Definition at line 65 of file [Message.cpp](#).

```
00065 { return magic_enum::enum_cast<MessageType>( m_JSON["type"].get<std::string>() ).value(); }
```

8.5.3.9 setConnectionStateInfos()

```
void yaodaq::IXMessage::setConnectionStateInfos (
    std::shared_ptr< ConnectionState > & connectionState ) [protected], [inherited]
```

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

```
00013 {
00014     nlohmann::json j = getContent();
00015     j["id"]           = connectionState->getId();
00016     j["remote_ip"]    = connectionState->getRemoteIp();
00017     j["remote_port"]  = connectionState->getRemotePort();
00018     setContent( j );
00019 }
```

8.5.3.10 setContent() [1/3]

```
void yaodaq::Message::setContent (
    const char * content ) [protected], [inherited]
```

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

```
00048 {
00049     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00050     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00051     }*/
00051 }
```

8.5.3.11 setContent() [2/3]

```
void yaodaq::Message::setContent (
    const nlohmann::json & content ) [protected], [inherited]
```

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

```
00039 { m_JSON["content"] = static\_cast<nlohmann::json>( content ); }
```

8.5.3.12 setContent() [3/3]

```
void yaodaq::Message::setContent (
    const std::string & content ) [protected], [inherited]
```

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

```
00042 {
00043     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00044     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00045     }*/
00045 }
```

8.5.3.13 setFrom()

```
void yaodaq::Message::setFrom (
    const Identifier & identifier ) [inherited]
```

Definition at line 80 of file [Message.cpp](#).

```
00081 {
00082     m_JSON["from"]["name"]    = identifier.getName();
00083     m_JSON["from"]["type"]    = identifier.getType();
00084     m_JSON["from"]["family"]  = identifier.getFamily();
00085     m_JSON["from"]["class"]   = identifier.getClass();
00086     m_JSON["from"]["domain"]  = identifier.getDomain();
00087 }
```

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

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

8.6 yaodaq::Identifier Class Reference

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

Public Member Functions

- [Identifier](#) ()=default
- [Identifier](#) (const std::string &type, const std::string &name)
- void [generateKey](#) (const [Domain](#) &domain=[Domain::Unknown](#), const [Class](#) &c_lass=[Class::Unknown](#), const [Family](#) &family=[Family::Unknown](#))
- std::string [getDomain](#) () const
- std::string [getClass](#) () const
- std::string [getFamily](#) () const
- std::string [getType](#) () const
- std::string [getName](#) () const
- [Key](#) [getKey](#) () const
- std::string [get](#) () const
- bool [empty](#) () const
- bool [operator<](#) (const [Identifier](#) &) const

Static Public Member Functions

- static [Identifier](#) [parse](#) (const std::string &)

8.6.1 Detailed Description

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

8.6.2 Constructor & Destructor Documentation

8.6.2.1 Identifier() [1/2]

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

8.6.2.2 Identifier() [2/2]

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

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

```
00026 : m_Type( type ), m_Name( name ) {}
```

8.6.3 Member Function Documentation

8.6.3.1 empty()

```
bool yaodaq::Identifier::empty ( ) const
```

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

```
00020 {
00021     if( get() == Identifier().get() ) return true;
00022     else
00023         return false;
00024 }
```

8.6.3.2 generateKey()

```
void yaodaq::Identifier::generateKey (
    const Domain & domain = Domain::Unknown,
    const Class & c_class = Class::Unknown,
    const Family & family = Family::Unknown )
```

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

```
00028 { m_Key = Key( domain, c_class, family ); }
```

8.6.3.3 get()

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

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

```
00042 { return fmt::format( "{0}/{1}/{2}/{3}/{4}", getDomain(), getClass(), getFamily(), getType(),
    getName() ); }
```

8.6.3.4 getClass()

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

Definition at line 32 of file [Identifier.cpp](#).

```
00032 { return static_cast<std::string>( magic_enum::enum_name( magic_enum::enum_cast<Class>(
    m_Key.getClass() ).value() ) ); }
```

8.6.3.5 getDomain()

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

Definition at line 30 of file [Identifier.cpp](#).

```
00030 { return static_cast<std::string>( magic_enum::enum_name( magic_enum::enum_cast<Domain>(
    m_Key.getDomain() ).value() ) ); }
```

8.6.3.6 getFamily()

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

Definition at line 34 of file [Identifier.cpp](#).

```
00034 { return static_cast<std::string>( magic_enum::enum_name( magic_enum::enum_cast<Family>(
    m_Key.getFamily() ).value() ) ); }
```

8.6.3.7 getKey()

```
Key yaodaq::Identifier::getKey ( ) const
```

Definition at line 40 of file [Identifier.cpp](#).

```
00040 { return m_Key; }
```

8.6.3.8 getName()

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

Definition at line 38 of file [Identifier.cpp](#).

```
00038 { return m_Name; }
```

8.6.3.9 getType()

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

Definition at line 36 of file [Identifier.cpp](#).

```
00036 { return m_Type; }
```

8.6.3.10 operator<()

```
bool yaodaq::Identifier::operator< (
    const Identifier & identifier ) const
```

Definition at line 75 of file [Identifier.cpp](#).

```
00075 { return this->get() < identifier.get(); }
```

8.6.3.11 parse()

```
Identifier yaodaq::Identifier::parse (
    const std::string & id ) [static]
```

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

```
00045 {
00046     std::vector<std::string> result;
00047     std::string tmp = id;
00048     std::string separator = "/";
00049     std::size_t second_pos = tmp.find( separator );
00050     while( second_pos != std::string::npos )
00051     {
00052         if( 0 != second_pos )
00053         {
00054             std::string word = tmp.substr( 0, second_pos - 0 );
00055             result.push_back( word );
00056         }
00057         else
00058             result.push_back( "" );
00059         tmp = tmp.substr( second_pos + separator.length() );
00060         second_pos = tmp.find( separator );
00061         if( second_pos == std::string::npos ) result.push_back( tmp );
00062     }
00063     if( result.size() == 5 )
00064     {
00065         Identifier identifier( result[3], result[4] );
00066         identifier.generateKey( magic_enum::enum_cast<Domain>( result[0] ).value(),
                                magic_enum::enum_cast<Class>( result[1] ).value(), magic_enum::enum_cast<Family>( result[2] ).value()
                                );
00067         return identifier;
00068     }
00069     else
00070     {
00071         throw Exception( StatusCode::WRONG_NUMBER_PARAMETERS, "Number of parameters in key should be 5
                                (Domain/Class/Family/Type/Name) !" );
00072     }
00073 }
```

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

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

8.7 yaodaq::Interrupt Class Reference

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

Public Member Functions

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

8.7.1 Detailed Description

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

8.7.2 Constructor & Destructor Documentation

8.7.2.1 Interrupt()

yaodaq::Interrupt::Interrupt ()

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

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

8.7.2.2 ~Interrupt()

yaodaq::Interrupt::~~Interrupt ()

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

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

8.7.3 Member Function Documentation

8.7.3.1 getSignal()

[Signal](#) yaodaq::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 }
```

8.7.3.2 init()

void yaodaq::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 }
```

8.7.3.3 restore()

void yaodaq::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 }
```

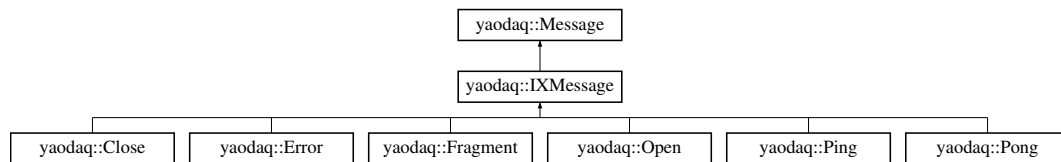
The documentation for this class was generated from the following files:

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

8.8 yaodaq::IXMessage Class Reference

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

Inheritance diagram for yaodaq::IXMessage:



Public Member Functions

- [IXMessage](#) (const [MessageType](#) &messageType)
- [std::string dump](#) (const int &indent=-1, const char &indent_char=' ', const bool &ensure_ascii=false, const [nlohmann::detail::error_handler_t](#) &error_handler=[nlohmann::detail::error_handler_t::strict](#)) const
- [nlohmann::json get](#) () const
- [nlohmann::json getContent](#) () const
- [std::string getTypeName](#) () const
- [MessageType getTypeValue](#) () const
- [std::string getTimestamp](#) () const
- [std::time_t getTime](#) () const
- [Identifier getIdentifier](#) () const
- void [setFrom](#) (const [Identifier](#) &)

Protected Member Functions

- void [setConnectionStateInfos](#) (std::shared_ptr< [ConnectionState](#) > &connectionState)
- void [setContent](#) (const [nlohmann::json](#) &content)
- void [setContent](#) (const std::string &content)
- void [setContent](#) (const char *content)

8.8.1 Detailed Description

Definition at line 22 of file [IXWebsocketMessage.hpp](#).

8.8.2 Constructor & Destructor Documentation

8.8.2.1 IXMessage()

```
yaodaq::IXMessage::IXMessage (
    const MessageType & messageType ) [explicit]
```

Definition at line 10 of file [IXWebsocketMessage.cpp](#).

```
00010 : Message( messageType ) {}
```

8.8.3 Member Function Documentation

8.8.3.1 dump()

```
std::string yaodaq::Message::dump (
    const int & indent = -1,
    const char & indent_char = ' ',
    const bool & ensure_ascii = false,
    const nlohmann::detail::error\_handler\_t & error_handler = nlohmann::detail::error\_handler\_t::strict ) const [inherited]
```

Definition at line 59 of file [Message.cpp](#).

```
00059 { return m_JSON.dump( indent, indent_char, ensure_ascii, error_handler ); }
```

8.8.3.2 get()

nlohmann::json yaodaq::Message::get () const [inherited]

Definition at line 61 of file [Message.cpp](#).

```
00061 { return m_JSON; }
```

8.8.3.3 getContent()

nlohmann::json yaodaq::Message::getContent () const [inherited]

Definition at line 67 of file [Message.cpp](#).

```
00067 { return m_JSON["content"]; }
```

8.8.3.4 getIdentifier()

Identifier yaodaq::Message::getIdentifier () const [inherited]

Definition at line 89 of file [Message.cpp](#).

```
00090 {
00091     if( m_JSON["from"].is_null() ) return {};
00092     else
00093     {
00094         Identifier id( m_JSON["from"]["type"].get<std::string>(),
00095             m_JSON["from"]["name"].get<std::string>() );
00096         id.generateKey( magic_enum::enum_cast<Domain>( m_JSON["from"]["domain"].get<std::string>()
00097             ).value(), magic_enum::enum_cast<Class>( m_JSON["from"]["class"].get<std::string>() ).value(),
00098             magic_enum::enum_cast<Family>( m_JSON["from"]["family"].get<std::string>()
00099             ).value() );
00097         return id;
00098     }
00099 }
```

8.8.3.5 getTime()

std::time_t yaodaq::Message::getTime () const [inherited]

Definition at line 71 of file [Message.cpp](#).

```
00072 {
00073     std::tm tm;
00074     memset( &tm, 0, sizeof( tm ) );
00075     std::stringstream ss( getTimestamp() );
00076     ss >> std::get_time( &tm, "%Y-%m-%d %H:%M:%S %z" );
00077     return mktime( &tm );
00078 }
```

8.8.3.6 getTimestamp()

std::string yaodaq::Message::getTimestamp () const [inherited]

Definition at line 69 of file [Message.cpp](#).

```
00069 { return m_JSON["timestamp"].get<std::string>(); }
```

8.8.3.7 getTypeName()

std::string yaodaq::Message::getTypeName () const [inherited]

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

```
00063 { return m_JSON["type"].get<std::string>(); }
```

8.8.3.8 getTypeValue()

MessageType yaodaq::Message::getTypeValue () const [inherited]

Definition at line 65 of file [Message.cpp](#).

```
00065 { return magic_enum::enum_cast<MessageType>( m_JSON["type"].get<std::string>() ).value(); }
```


8.8.3.9 setConnectionStateInfos()

```
void yaodaq::IXMessage::setConnectionStateInfos (
    std::shared_ptr< ConnectionState > & connectionState ) [protected]
```

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

```
00013 {
00014     nlohmann::json j = getContent();
00015     j["id"]           = connectionState->getId();
00016     j["remote_ip"]    = connectionState->getRemoteIp();
00017     j["remote_port"]  = connectionState->getRemotePort();
00018     setContent( j );
00019 }
```

8.8.3.10 setContent() [1/3]

```
void yaodaq::Message::setContent (
    const char * content ) [protected], [inherited]
```

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

```
00048 {
00049     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00050     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00051     }*/
```

8.8.3.11 setContent() [2/3]

```
void yaodaq::Message::setContent (
    const nlohmann::json & content ) [protected], [inherited]
```

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

```
00039 { m_JSON["content"] = static\_cast<nlohmann::json>( content ); }
```

8.8.3.12 setContent() [3/3]

```
void yaodaq::Message::setContent (
    const std::string & content ) [protected], [inherited]
```

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

```
00042 {
00043     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00044     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00045     }*/
```

8.8.3.13 setFrom()

```
void yaodaq::Message::setFrom (
    const Identifier & identifier ) [inherited]
```

Definition at line 80 of file [Message.cpp](#).

```
00081 {
00082     m_JSON["from"]["name"]   = identifier.getName();
00083     m_JSON["from"]["type"]   = identifier.getType();
00084     m_JSON["from"]["family"] = identifier.getFamily();
00085     m_JSON["from"]["class"]  = identifier.getClass();
00086     m_JSON["from"]["domain"] = identifier.getDomain();
00087 }
```

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

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

8.9 yaodaq::Key Class Reference

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

Public Member Functions

- [Key](#) ()=default
- [Key](#) (const [Domain](#) &domain, const [Class](#) &c_lass, const [Family](#) &family)
- std::int_least8_t [getDomain](#) () const
- std::int_least8_t [getClass](#) () const
- std::int_least16_t [getFamily](#) () const
- std::int_least32_t [getKey](#) () const

8.9.1 Detailed Description

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

8.9.2 Constructor & Destructor Documentation

8.9.2.1 Key() [1/2]

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

8.9.2.2 Key() [2/2]

```
yaodaq::Key::Key (
    const Domain & domain,
    const Class & c_lass,
    const Family & family ) [explicit]
```

Definition at line 11 of file [Key.cpp](#).

```
00011 { m_Key = ( static_cast<std::int_least8_t>( domain ) << 24 ) + ( static_cast<std::int_least8_t>( c_lass
    ) << 16 ) + static_cast<std::int_least16_t>( family ); }
```

8.9.3 Member Function Documentation

8.9.3.1 getClass()

```
std::int_least8_t yaodaq::Key::getClass ( ) const
```

Definition at line 15 of file [Key.cpp](#).

```
00015 { return ( m_Key >> 16 ) & 0xFF; }
```

8.9.3.2 getDomain()

```
std::int_least8_t yaodaq::Key::getDomain ( ) const
```

Definition at line 13 of file [Key.cpp](#).

```
00013 { return ( m_Key >> 24 ) & 0xFF; }
```

8.9.3.3 getFamily()

```
std::int_least16_t yaodaq::Key::getFamily ( ) const
```

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

```
00017 { return (m_Key)&0xFFFF; }
```

8.9.3.4 getKey()

std::int_least32_t yaodag::Key::getKey () const

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

```
00019 { return m_Key; }
```

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

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

8.10 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](#) ()
- void [setVerbosity](#) (const [Verbosity](#) &verbosity)
- void [setName](#) (const std::string &)
- std::shared_ptr< spdlog::logger > [logger](#) ()
- void [addSink](#) (const [spdlog::sink_ptr](#) &)
- void [clearSinks](#) ()

8.10.1 Detailed Description

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

8.10.2 Member Enumeration Documentation

8.10.2.1 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 };
```

8.10.3 Constructor & Destructor Documentation

8.10.3.1 LoggerHandler()

```
yaodaq::LoggerHandler::LoggerHandler ( )
Definition at line 12 of file LoggerHandler.cpp.
00012 { init(); }
```

8.10.3.2 ~LoggerHandler()

```
yaodaq::LoggerHandler::~~LoggerHandler ( )
Definition at line 20 of file LoggerHandler.cpp.
00020 {}
```

8.10.4 Member Function Documentation

8.10.4.1 addSink()

```
void yaodaq::LoggerHandler::addSink (
    const spdlog::sink_ptr & sink )
Definition at line 45 of file LoggerHandler.cpp.
00046 {
00047     m_Sinks.push_back( sink );
00048     init();
00049 }
```

8.10.4.2 clearSinks()

```
void yaodaq::LoggerHandler::clearSinks ( )
Definition at line 51 of file LoggerHandler.cpp.
00052 {
00053     m_Sinks.clear();
00054     init();
00055 }
```

8.10.4.3 logger()

```
std::shared_ptr< spdlog::logger > yaodaq::LoggerHandler::logger ( )
Definition at line 43 of file LoggerHandler.cpp.
00043 { return std::shared_ptr<spdlog::logger>( m_Logger ); }
```

8.10.4.4 setName()

```
void yaodaq::LoggerHandler::setName (
    const std::string & name )
Definition at line 14 of file LoggerHandler.cpp.
00015 {
00016     m_Name = name;
00017     init();
00018 }
```

8.10.4.5 setVerbosity()

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

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

```
00023 {
00024     m_Verbosity = verbosity;
00025     init();
00026 }
```

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

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

8.11 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 \(\)](#)

8.11.1 Detailed Description

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

8.11.2 Constructor & Destructor Documentation

8.11.2.1 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 }
```

8.11.2.2 ~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 }
```

8.11.3 Member Function Documentation

8.11.3.1 getInstance()

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

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

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

8.11.3.2 getSignal()

`Signal yaodaq::Looper::getSignal ()`

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

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

8.11.3.3 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 }
```

8.11.3.4 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 }
```

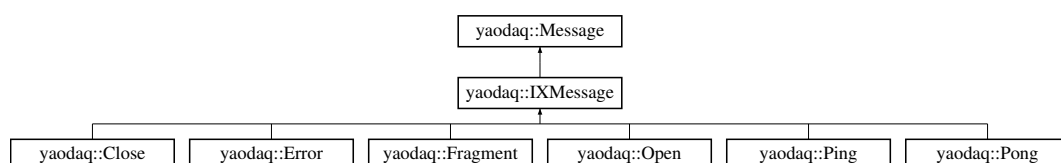
The documentation for this class was generated from the following files:

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

8.12 yaodaq::Message Class Reference

`#include <yaodaq/Message.hpp>`

Inheritance diagram for `yaodaq::Message`:



Public Member Functions

- [Message](#) ()
- [Message](#) (const nlohmann::json &content, const [MessageType](#) &messageType=[MessageType::Unknown](#))
- [Message](#) (const std::string &content, const [MessageType](#) &messageType=[MessageType::Unknown](#))
- [Message](#) (const char *content, const [MessageType](#) &messageType=[MessageType::Unknown](#))
- std::string [dump](#) (const int &indent=-1, const char &indent_char=' ', const bool &ensure_ascii=false, const nlohmann::detail::error_handler_t &error_handler=nlohmann::detail::error_handler_t::strict) const
- nlohmann::json [get](#) () const
- nlohmann::json [getContent](#) () const
- std::string [getTypeName](#) () const
- [MessageType](#) [getTypeValue](#) () const
- std::string [getTimestamp](#) () const
- std::time_t [getTime](#) () const
- [Identifier](#) [getIdentifier](#) () const
- void [setFrom](#) (const [Identifier](#) &)

Protected Member Functions

- [Message](#) (const [MessageType](#) &messageType)
- void [setContent](#) (const nlohmann::json &content)
- void [setContent](#) (const std::string &content)
- void [setContent](#) (const char *content)

8.12.1 Detailed Description

Definition at line 18 of file [Message.hpp](#).

8.12.2 Constructor & Destructor Documentation

8.12.2.1 Message() [1/5]

yaodaq::Message::Message ()

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

```
00025 {
00026     m_JSON["from"];
00027     m_JSON["to"];
00028     m_JSON["type"] = magic_enum::enum_name( MessageType::Unknown );
00029     m_JSON["uuid"] = ix::uuid4();
00030     m_JSON["content"];
00031     m_JSON["timestamp"] = fmt::format( "{:%F %T %z}", fmt::gmtime( std::chrono::system_clock::to_time_t(
std::chrono::system_clock::now() ) ) );
00032     m_JSON["meta"]["compiler"] = nlohmann::json::meta()["compiler"];
00033     m_JSON["meta"]["platform"] = nlohmann::json::meta()["platform"];
00034     m_JSON["meta"]["versions"]["json"] = nlohmann::json::meta()["version"]["string"];
00035     m_JSON["meta"]["versions"]["yaodaq"] = yaodaq_version.to_string();
00036     m_JSON["meta"]["versions"]["ixwebsocket"] = std::string( IX_WEBSOCKET_VERSION );
00037 }
```

8.12.2.2 Message() [2/5]

yaodaq::Message::Message (

const nlohmann::json & content,

const [MessageType](#) & messageType = [MessageType::Unknown](#)) [explicit]

Definition at line 53 of file [Message.cpp](#).

```
00053 : Message( messageType ) { setContent( content ); }
```

8.12.2.3 Message() [3/5]

```
yaodaq::Message::Message (
    const std::string & content,
    const MessageType & messageType = MessageType::Unknown ) [explicit]
```

Definition at line 55 of file [Message.cpp](#).

```
00055 : Message( messageType ) { setContent( content ); }
```

8.12.2.4 Message() [4/5]

```
yaodaq::Message::Message (
    const char * content,
    const MessageType & messageType = MessageType::Unknown ) [explicit]
```

Definition at line 57 of file [Message.cpp](#).

```
00057 : Message( messageType ) { setContent( content ); }
```

8.12.2.5 Message() [5/5]

```
yaodaq::Message::Message (
    const MessageType & messageType ) [explicit], [protected]
```

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

```
00101 : Message() { m_JSON["type"] = magic_enum::enum_name( messageType ); }
```

8.12.3 Member Function Documentation**8.12.3.1 dump()**

```
std::string yaodaq::Message::dump (
    const int & indent = -1,
    const char & indent_char = ' ',
    const bool & ensure_ascii = false,
    const nlohmann::detail::error_handler_t & error_handler = nlohmann::detail::
:error_handler_t::strict ) const
```

Definition at line 59 of file [Message.cpp](#).

```
00059 { return m_JSON.dump( indent, indent_char, ensure_ascii, error_handler ); }
```

8.12.3.2 get()

```
nlohmann::json yaodaq::Message::get ( ) const
```

Definition at line 61 of file [Message.cpp](#).

```
00061 { return m_JSON; }
```

8.12.3.3 getContent()

```
nlohmann::json yaodaq::Message::getContent ( ) const
```

Definition at line 67 of file [Message.cpp](#).

```
00067 { return m_JSON["content"]; }
```

8.12.3.4 getIdentifier()

```
Identifier yaodaq::Message::getIdentifier ( ) const
```

Definition at line 89 of file [Message.cpp](#).

```
00090 {
00091     if( m_JSON["from"].is_null() ) return {};
00092     else
00093     {
```



```

00094     Identifier id( m_JSON["from"]["type"].get<std::string>(),
00095     m_JSON["from"]["name"].get<std::string>() );
00096     id.generateKey( magic_enum::enum_cast<Domain>( m_JSON["from"]["domain"].get<std::string>()
00097     ).value(), magic_enum::enum_cast<Class>( m_JSON["from"]["class"].get<std::string>() ).value(),
00098     magic_enum::enum_cast<Family>( m_JSON["from"]["family"].get<std::string>()
00099     ).value() );
00097     return id;
00098 }
00099 }

```

8.12.3.5 getTime()

std::time_t yaodaq::Message::getTime () const

Definition at line 71 of file [Message.cpp](#).

```

00072 {
00073     std::tm tm;
00074     memset( &tm, 0, sizeof( tm ) );
00075     std::stringstream ss( getTimestamp() );
00076     ss >> std::get_time( &tm, "%Y-%m-%d %H:%M:%S %z" );
00077     return mktime( &tm );
00078 }

```

8.12.3.6 getTimestamp()

std::string yaodaq::Message::getTimestamp () const

Definition at line 69 of file [Message.cpp](#).

```

00069 { return m_JSON["timestamp"].get<std::string>(); }

```

8.12.3.7 getTypeName()

std::string yaodaq::Message::getTypeName () const

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

```

00063 { return m_JSON["type"].get<std::string>(); }

```

8.12.3.8 getTypeValue()

MessageType yaodaq::Message::getTypeValue () const

Definition at line 65 of file [Message.cpp](#).

```

00065 { return magic_enum::enum_cast<MessageType>( m_JSON["type"].get<std::string>() ).value(); }

```

8.12.3.9 setContent() [1/3]

```

void yaodaq::Message::setContent (
    const char * content ) [protected]

```

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

```

00048 {
00049     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00050     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00051     }*/
00051 }

```

8.12.3.10 setContent() [2/3]

```

void yaodaq::Message::setContent (
    const nlohmann::json & content ) [protected]

```

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

```

00039 { m_JSON["content"] = static_cast<nlohmann::json>( content ); }

```

8.12.3.11 setContent() [3/3]

```
void yaodaq::Message::setContent (
    const std::string & content ) [protected]
```

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

```
00042 {
00043     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00044     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00045     }*/
00045 }
```

8.12.3.12 setFrom()

```
void yaodaq::Message::setFrom (
    const Identifier & identifier )
```

Definition at line 80 of file [Message.cpp](#).

```
00081 {
00082     m_JSON["from"]["name"] = identifier.getName();
00083     m_JSON["from"]["type"] = identifier.getType();
00084     m_JSON["from"]["family"] = identifier.getFamily();
00085     m_JSON["from"]["class"] = identifier.getClass();
00086     m_JSON["from"]["domain"] = identifier.getDomain();
00087 }
```

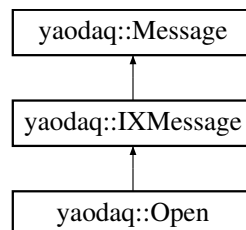
The documentation for this class was generated from the following files:

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

8.13 yaodaq::Open Class Reference

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

Inheritance diagram for yaodaq::Open:



Public Member Functions

- [Open](#) (const ix::WebSocketOpenInfo &openInfo)
- [Open](#) (const ix::WebSocketOpenInfo &openInfo, std::shared_ptr< [ConnectionState](#) > &connectionState)
- std::string [getURI](#) () const
- std::map< std::string, std::string > [getHeaders](#) () const
- std::string [getProtocol](#) () const
- std::string [dump](#) (const int &indent=-1, const char &indent_char=' ', const bool &ensure_ascii=false, const nlohmann::detail::error_handler_t &error_handler=nlohmann::detail::error_handler_t::strict) const
- nlohmann::json [get](#) () const
- nlohmann::json [getContent](#) () const
- std::string [getTypeName](#) () const
- [MessageType](#) [getTypeValue](#) () const
- std::string [getTimestamp](#) () const
- std::time_t [getTime](#) () const
- [Identifier](#) [getIdentifier](#) () const
- void [setFrom](#) (const [Identifier](#) &)

Protected Member Functions

- void [setConnectionStateInfos](#) (std::shared_ptr< [ConnectionState](#) > &connectionState)
- void [setContent](#) (const nlohmann::json &content)
- void [setContent](#) (const std::string &content)
- void [setContent](#) (const char *content)

8.13.1 Detailed Description

Definition at line 31 of file [IXWebsocketMessage.hpp](#).

8.13.2 Constructor & Destructor Documentation

8.13.2.1 Open() [1/2]

```
yaodaq::Open::Open (
    const ix::WebSocketOpenInfo & openInfo ) [explicit]
```

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

```
00022 : IXMessage( MessageType::Open )
00023 {
00024     nlohmann::json j = getContent();
00025     j["uri"]         = openInfo.uri;
00026     j["headers"]     = openInfo.headers;
00027     j["protocol"]    = openInfo.protocol;
00028     setContent( j );
00029 }
```

8.13.2.2 Open() [2/2]

```
yaodaq::Open::Open (
    const ix::WebSocketOpenInfo & openInfo,
    std::shared_ptr< ConnectionState > & connectionState )
```

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

```
00031 : Open( openInfo ) { setConnectionStateInfos( connectionState ); }
```

8.13.3 Member Function Documentation

8.13.3.1 dump()

```
std::string yaodaq::Message::dump (
    const int & indent = -1,
    const char & indent_char = ' ',
    const bool & ensure_ascii = false,
    const nlohmann::detail::error_handler_t & error_handler = nlohmann::detail::↵
: error_handler_t::strict ) const [inherited]
```

Definition at line 59 of file [Message.cpp](#).

```
00059 { return m_JSON.dump( indent, indent_char, ensure_ascii, error_handler ); }
```

8.13.3.2 get()

```
nlohmann::json yaodaq::Message::get ( ) const [inherited]
```

Definition at line 61 of file [Message.cpp](#).

```
00061 { return m_JSON; }
```

8.13.3.3 getContent()

nlohmann::json yaodaq::Message::getContent () const [inherited]

Definition at line 67 of file [Message.cpp](#).

```
00067 { return m_JSON["content"]; }
```

8.13.3.4 getHeaders()

std::map< std::string, std::string > yaodaq::Open::getHeaders () const

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

```
00036 {
00037     std::map<std::string, std::string> ret = get()["content"]["headers"].get<std::map<std::string,
std::string>());
00038     return ret;
00039 }
```

8.13.3.5 getIdentifier()

Identifier yaodaq::Message::getIdentifier () const [inherited]

Definition at line 89 of file [Message.cpp](#).

```
00090 {
00091     if( m_JSON["from"].is_null() ) return {};
00092     else
00093     {
00094         Identifier id( m_JSON["from"]["type"].get<std::string>(),
m_JSON["from"]["name"].get<std::string>() );
00095         id.generateKey( magic_enum::enum_cast<Domain>( m_JSON["from"]["domain"].get<std::string>()
).value(), magic_enum::enum_cast<Class>( m_JSON["from"]["class"].get<std::string>() ).value(),
00096             magic_enum::enum_cast<Family>( m_JSON["from"]["family"].get<std::string>()
).value() );
00097         return id;
00098     }
00099 }
```

8.13.3.6 getProtocol()

std::string yaodaq::Open::getProtocol () const

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

```
00041 { return get()["content"]["protocol"].get<std::string>(); }
```

8.13.3.7 getTime()

std::time_t yaodaq::Message::getTime () const [inherited]

Definition at line 71 of file [Message.cpp](#).

```
00072 {
00073     std::tm tm;
00074     memset( &tm, 0, sizeof( tm ) );
00075     std::stringstream ss( getTimestamp() );
00076     ss >> std::get_time( &tm, "%Y-%m-%d %H:%M:%S %z" );
00077     return mktime( &tm );
00078 }
```

8.13.3.8 getTimestamp()

std::string yaodaq::Message::getTimestamp () const [inherited]

Definition at line 69 of file [Message.cpp](#).

```
00069 { return m_JSON["timestamp"].get<std::string>(); }
```

8.13.3.9 getTypeName()

std::string yaodaq::Message::getTypeName () const [inherited]

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

```
00063 { return m_JSON["type"].get<std::string>(); }
```

8.13.3.10 getTypeValue()

`MessageType` yaodag::Message::getTypeValue () const [inherited]

Definition at line 65 of file [Message.cpp](#).

```
00065 { return magic_enum::enum_cast<MessageType>( m_JSON["type"].get<std::string>() ).value(); }
```

8.13.3.11 getURI()

`std::string` yaodag::Open::getURI () const

Definition at line 33 of file [IXWebsocketMessage.cpp](#).

```
00033 { return get()["content"]["uri"].get<std::string>(); }
```

8.13.3.12 setConnectionStateInfos()

`void` yaodag::IXMessage::setConnectionStateInfos (
 `std::shared_ptr< ConnectionState > & connectionState`) [protected], [inherited]

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

```
00013 {
00014     nlohmann::json j = getContent();
00015     j["id"]           = connectionState->getId();
00016     j["remote_ip"]    = connectionState->getRemoteIp();
00017     j["remote_port"]  = connectionState->getRemotePort();
00018     setContent( j );
00019 }
```

8.13.3.13 setContent() [1/3]

`void` yaodag::Message::setContent (
 `const char * content`) [protected], [inherited]

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

```
00048 {
00049     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00050     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00051     }*/
00051 }
```

8.13.3.14 setContent() [2/3]

`void` yaodag::Message::setContent (
 `const nlohmann::json & content`) [protected], [inherited]

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

```
00039 { m_JSON["content"] = static_cast<nlohmann::json>( content ); }
```

8.13.3.15 setContent() [3/3]

`void` yaodag::Message::setContent (
 `const std::string & content`) [protected], [inherited]

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

```
00042 {
00043     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00044     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00045     }*/
00045 }
```

8.13.3.16 setFrom()

`void` yaodag::Message::setFrom (
 `const Identifier & identifier`) [inherited]

Definition at line 80 of file [Message.cpp](#).

```
00081 {
00082     m_JSON["from"]["name"] = identifier.getName();
00082 }
```

```

00083     m_JSON["from"]["type"]   = identifier.getType();
00084     m_JSON["from"]["family"]  = identifier.getFamily();
00085     m_JSON["from"]["class"]   = identifier.getClass();
00086     m_JSON["from"]["domain"]  = identifier.getDomain();
00087 }

```

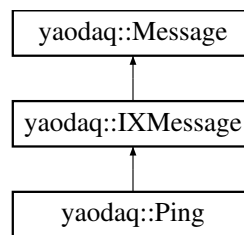
The documentation for this class was generated from the following files:

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

8.14 yaodaq::Ping Class Reference

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

Inheritance diagram for yaodaq::Ping:



Public Member Functions

- [Ping](#) (const ix::WebSocketMessagePtr &ping)
- [Ping](#) (const ix::WebSocketMessagePtr &ping, std::shared_ptr< [ConnectionState](#) > &connectionState)
- std::string [dump](#) (const int &indent=-1, const char &indent_char=' ', const bool &ensure_ascii=false, const nlohmann::detail::error_handler_t &error_handler=nlohmann::detail::error_handler_t::strict) const
- nlohmann::json [get](#) () const
- nlohmann::json [getContent](#) () const
- std::string [getTypeName](#) () const
- [MessageType](#) [getTypeValue](#) () const
- std::string [getTimestamp](#) () const
- std::time_t [getTime](#) () const
- [Identifier](#) [getIdentifier](#) () const
- void [setFrom](#) (const [Identifier](#) &)

Protected Member Functions

- void [setConnectionStateInfos](#) (std::shared_ptr< [ConnectionState](#) > &connectionState)
- void [setContent](#) (const nlohmann::json &content)
- void [setContent](#) (const std::string &content)
- void [setContent](#) (const char *content)

8.14.1 Detailed Description

Definition at line 63 of file [IXWebsocketMessage.hpp](#).

8.14.2 Constructor & Destructor Documentation

8.14.2.1 Ping() [1/2]

```
yaodag::Ping::Ping (
    const ix::WebSocketMessagePtr & ping ) [explicit]
```

Definition at line 84 of file [IXWebSocketMessage.cpp](#).

```
00084 : Ping( ping ) { setMessageType::Ping } {}
```

8.14.2.2 Ping() [2/2]

```
yaodag::Ping::Ping (
    const ix::WebSocketMessagePtr & ping,
    std::shared_ptr< ConnectionState > & connectionState )
```

Definition at line 86 of file [IXWebSocketMessage.cpp](#).

```
00086 : Ping( ping ) { setConnectionStateInfos( connectionState ); }
```

8.14.3 Member Function Documentation

8.14.3.1 dump()

```
std::string yaodag::Message::dump (
    const int & indent = -1,
    const char & indent_char = ' ',
    const bool & ensure_ascii = false,
    const nlohmann::detail::error_handler_t & error_handler = nlohmann::detail::
:error_handler_t::strict ) const [inherited]
```

Definition at line 59 of file [Message.cpp](#).

```
00059 { return m_JSON.dump( indent, indent_char, ensure_ascii, error_handler ); }
```

8.14.3.2 get()

```
nlohmann::json yaodag::Message::get ( ) const [inherited]
```

Definition at line 61 of file [Message.cpp](#).

```
00061 { return m_JSON; }
```

8.14.3.3 getContent()

```
nlohmann::json yaodag::Message::getContent ( ) const [inherited]
```

Definition at line 67 of file [Message.cpp](#).

```
00067 { return m_JSON["content"]; }
```

8.14.3.4 getIdentifier()

```
Identifier yaodag::Message::getIdentifier ( ) const [inherited]
```

Definition at line 89 of file [Message.cpp](#).

```
00090 {
00091     if( m_JSON["from"].is_null() ) return {};
00092     else
00093     {
00094         Identifier id( m_JSON["from"]["type"].get<std::string>(),
m_JSON["from"]["name"].get<std::string>() );
00095         id.generateKey( magic_enum::enum_cast<Domain>( m_JSON["from"]["domain"].get<std::string>()
).value(), magic_enum::enum_cast<Class>( m_JSON["from"]["class"].get<std::string>() ).value(),
00096             magic_enum::enum_cast<Family>( m_JSON["from"]["family"].get<std::string>()
).value() );
00097         return id;
00098     }
00099 }
```

8.14.3.5 getTime()

std::time_t yaodaq::Message::getTime () const [inherited]

Definition at line 71 of file [Message.cpp](#).

```
00072 {
00073     std::tm tm;
00074     memset( &tm, 0, sizeof( tm ) );
00075     std::stringstream ss( getTimeStamp\(\) );
00076     ss >> std::get_time( &tm, "%Y-%m-%d %H:%M:%S %z" );
00077     return mktime( &tm );
00078 }
```

8.14.3.6 getTimeStamp()

std::string yaodaq::Message::getTimeStamp () const [inherited]

Definition at line 69 of file [Message.cpp](#).

```
00069 { return m_JSON["timestamp"].get<std::string>(); }
```

8.14.3.7 getTypeName()

std::string yaodaq::Message::getTypeName () const [inherited]

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

```
00063 { return m_JSON["type"].get<std::string>(); }
```

8.14.3.8 getTypeValue()

[MessageType](#) yaodaq::Message::getTypeValue () const [inherited]

Definition at line 65 of file [Message.cpp](#).

```
00065 { return magic_enum::enum_cast<MessageType>( m_JSON["type"].get<std::string>() ).value(); }
```

8.14.3.9 setConnectionStateInfos()

void yaodaq::IXMessage::setConnectionStateInfos (
std::shared_ptr< [ConnectionState](#) > & *connectionState*) [protected], [inherited]

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

```
00013 {
00014     nlohmann::json j = getContent();
00015     j["id"] = connectionState->getId();
00016     j["remote_ip"] = connectionState->getRemoteIp();
00017     j["remote_port"] = connectionState->getRemotePort();
00018     setContent( j );
00019 }
```

8.14.3.10 setContent() [1/3]

void yaodaq::Message::setContent (
const char * *content*) [protected], [inherited]

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

```
00048 {
00049     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00050     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00051     }*/
00051 }
```

8.14.3.11 setContent() [2/3]

void yaodaq::Message::setContent (
const nlohmann::json & *content*) [protected], [inherited]

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

```
00039 { m_JSON["content"] = static\_cast<nlohmann::json>( content ); }
```


8.14.3.12 setContent() [3/3]

```
void yaodaq::Message::setContent (
    const std::string & content ) [protected], [inherited]
```

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

```
00042 {
00043     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00044     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00045     }*/
00045 }
```

8.14.3.13 setFrom()

```
void yaodaq::Message::setFrom (
    const Identifier & identifier ) [inherited]
```

Definition at line 80 of file [Message.cpp](#).

```
00081 {
00082     m_JSON["from"]["name"] = identifier.getName();
00083     m_JSON["from"]["type"] = identifier.getType();
00084     m_JSON["from"]["family"] = identifier.getFamily();
00085     m_JSON["from"]["class"] = identifier.getClass();
00086     m_JSON["from"]["domain"] = identifier.getDomain();
00087 }
```

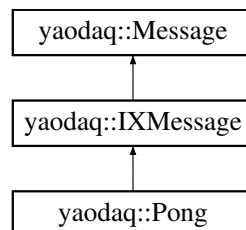
The documentation for this class was generated from the following files:

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

8.15 yaodaq::Pong Class Reference

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

Inheritance diagram for yaodaq::Pong:

**Public Member Functions**

- [Pong](#) (const ix::WebSocketMessagePtr &pong)
- [Pong](#) (const ix::WebSocketMessagePtr &pong, std::shared_ptr< [ConnectionState](#) > &connectionState)
- std::string [dump](#) (const int &indent=-1, const char &indent_char=' ', const bool &ensure_ascii=false, const nlohmann::detail::error_handler_t &error_handler=nlohmann::detail::error_handler_t::strict) const
- nlohmann::json [get](#) () const
- nlohmann::json [getContent](#) () const
- std::string [getTypeName](#) () const
- [MessageType](#) [getTypeValue](#) () const
- std::string [getTimestamp](#) () const
- std::time_t [getTime](#) () const
- [Identifier](#) [getIdentifier](#) () const
- void [setFrom](#) (const [Identifier](#) &)

Protected Member Functions

- void [setConnectionStateInfos](#) (std::shared_ptr< [ConnectionState](#) > &connectionState)
- void [setContent](#) (const nlohmann::json &content)
- void [setContent](#) (const std::string &content)
- void [setContent](#) (const char *content)

8.15.1 Detailed Description

Definition at line 70 of file [IXWebsocketMessage.hpp](#).

8.15.2 Constructor & Destructor Documentation

8.15.2.1 Pong() [1/2]

```
yaodag::Pong::Pong (
    const ix::WebsocketMessagePtr & pong ) [explicit]
```

Definition at line 89 of file [IXWebsocketMessage.cpp](#).

```
00089 : IXMessage( MessageType::Pong ) {}
```

8.15.2.2 Pong() [2/2]

```
yaodag::Pong::Pong (
    const ix::WebsocketMessagePtr & pong,
    std::shared_ptr< ConnectionState > & connectionState )
```

Definition at line 91 of file [IXWebsocketMessage.cpp](#).

```
00091 : Pong( pong ) { setConnectionStateInfos( connectionState ); }
```

8.15.3 Member Function Documentation

8.15.3.1 dump()

```
std::string yaodag::Message::dump (
    const int & indent = -1,
    const char & indent_char = ' ',
    const bool & ensure_ascii = false,
    const nlohmann::detail::error_handler_t & error_handler = nlohmann::detail::
:error_handler_t::strict ) const [inherited]
```

Definition at line 59 of file [Message.cpp](#).

```
00059 { return m_JSON.dump( indent, indent_char, ensure_ascii, error_handler ); }
```

8.15.3.2 get()

```
nlohmann::json yaodag::Message::get ( ) const [inherited]
```

Definition at line 61 of file [Message.cpp](#).

```
00061 { return m_JSON; }
```

8.15.3.3 getContent()

```
nlohmann::json yaodag::Message::getContent ( ) const [inherited]
```

Definition at line 67 of file [Message.cpp](#).

```
00067 { return m_JSON["content"]; }
```

8.15.3.4 getIdentifier()

`Identifier` yaodaq::Message::getIdentifier () const [inherited]

Definition at line 89 of file [Message.cpp](#).

```
00090 {
00091     if( m_JSON["from"].is_null() ) return {};
00092     else
00093     {
00094         Identifier id( m_JSON["from"]["type"].get<std::string>(),
00095             m_JSON["from"]["name"].get<std::string>() );
00096         id.generateKey( magic_enum::enum_cast<Domain>( m_JSON["from"]["domain"].get<std::string>()
00097             ).value(), magic_enum::enum_cast<Class>( m_JSON["from"]["class"].get<std::string>() ).value(),
00098             magic_enum::enum_cast<Family>( m_JSON["from"]["family"].get<std::string>()
00099             ).value() );
00097         return id;
00098     }
00099 }
```

8.15.3.5 getTime()

`std::time_t` yaodaq::Message::getTime () const [inherited]

Definition at line 71 of file [Message.cpp](#).

```
00072 {
00073     std::tm tm;
00074     memset( &tm, 0, sizeof( tm ) );
00075     std::stringstream ss( getTimestamp() );
00076     ss >> std::get_time( &tm, "%Y-%m-%d %H:%M:%S %z" );
00077     return mktime( &tm );
00078 }
```

8.15.3.6 getTimestamp()

`std::string` yaodaq::Message::getTimestamp () const [inherited]

Definition at line 69 of file [Message.cpp](#).

```
00069 { return m_JSON["timestamp"].get<std::string>(); }
```

8.15.3.7 getTypeName()

`std::string` yaodaq::Message::getTypeName () const [inherited]

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

```
00063 { return m_JSON["type"].get<std::string>(); }
```

8.15.3.8 getTypeValue()

`MessageType` yaodaq::Message::getTypeValue () const [inherited]

Definition at line 65 of file [Message.cpp](#).

```
00065 { return magic_enum::enum_cast<MessageType>( m_JSON["type"].get<std::string>() ).value(); }
```

8.15.3.9 setConnectionStateInfos()

`void` yaodaq::IXMessage::setConnectionStateInfos (
 `std::shared_ptr< ConnectionState >` & `connectionState`) [protected], [inherited]

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

```
00013 {
00014     nlohmann::json j = getContent();
00015     j["id"]           = connectionState->getId();
00016     j["remote_ip"]    = connectionState->getRemoteIp();
00017     j["remote_port"]  = connectionState->getRemotePort();
00018     setContent( j );
00019 }
```

8.15.3.10 setContent() [1/3]

```
void yaodaq::Message::setContent (
    const char * content ) [protected], [inherited]
```

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

```
00048 {
00049     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00050     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00051     }*/
```

8.15.3.11 setContent() [2/3]

```
void yaodaq::Message::setContent (
    const nlohmann::json & content ) [protected], [inherited]
```

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

```
00039 { m_JSON["content"] = static_cast<nlohmann::json>( content ); }
```

8.15.3.12 setContent() [3/3]

```
void yaodaq::Message::setContent (
    const std::string & content ) [protected], [inherited]
```

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

```
00042 {
00043     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00044     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00045     }*/
```

8.15.3.13 setFrom()

```
void yaodaq::Message::setFrom (
    const Identifier & identifier ) [inherited]
```

Definition at line 80 of file [Message.cpp](#).

```
00081 {
00082     m_JSON["from"]["name"] = identifier.getName();
00083     m_JSON["from"]["type"] = identifier.getType();
00084     m_JSON["from"]["family"] = identifier.getFamily();
00085     m_JSON["from"]["class"] = identifier.getClass();
00086     m_JSON["from"]["domain"] = identifier.getDomain();
00087 }
```

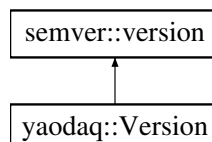
The documentation for this class was generated from the following files:

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

8.16 yaodaq::Version Class Reference

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

Inheritance diagram for yaodaq::Version:



Public Member Functions

- constexpr [Version](#) (const std::uint8_t &mj, const std::uint8_t &mn, const std::uint8_t &pt, const semver::prerelease &prr=semver::prerelease::none, const std::uint8_t &prn=0) noexcept

- constexpr [Version](#) (const std::string_view &str)
- constexpr [Version](#) ()=default
- std::uint8_t [getMajor](#) ()
- std::uint8_t [getMinor](#) ()
- std::uint8_t [getPatch](#) ()
- std::string [getPreRelease](#) ()
- std::uint8_t [getPreReleaseNumber](#) ()

8.16.1 Detailed Description

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

8.16.2 Constructor & Destructor Documentation

8.16.2.1 Version() [1/3]

```
constexpr yaodaq::Version::Version (
    const std::uint8_t & mj,
    const std::uint8_t & mn,
    const std::uint8_t & pt,
    const semver::prerelease & prt = semver::prerelease::none,
    const std::uint8_t & prn = 0 ) [inline], [constexpr], [noexcept]
```

Definition at line 18 of file [Version.hpp](#).

```
00018 : semver::version( mj, mn, pt, prt, prn ) {}
```

8.16.2.2 Version() [2/3]

```
constexpr yaodaq::Version::Version (
    const std::string_view & str ) [inline], [explicit], [constexpr]
```

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

```
00019 : semver::version( str ) {}
```

8.16.2.3 Version() [3/3]

```
constexpr yaodaq::Version::Version ( ) [constexpr], [default]
```

8.16.3 Member Function Documentation

8.16.3.1 getMajor()

```
std::uint8_t yaodaq::Version::getMajor ( )
```

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

```
00012 { return major; }
```

8.16.3.2 getMinor()

```
std::uint8_t yaodaq::Version::getMinor ( )
```

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

```
00014 { return minor; }
```

8.16.3.3 getPatch()

```
std::uint8_t yaodag::Version::getPatch ( )
```

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

```
00016 { return patch; }
```

8.16.3.4 getPreRelease()

```
std::string yaodag::Version::getPreRelease ( )
```

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

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

8.16.3.5 getPreReleaseNumber()

```
std::uint8_t yaodag::Version::getPreReleaseNumber ( )
```

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

```
00020 { return prerelease_number; }
```

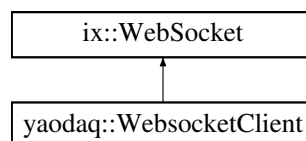
The documentation for this class was generated from the following files:

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

8.17 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="YAODAQWebsocketClient")
- virtual [~WebsocketClient](#) ()
- void [start](#) ()
- void [stop](#) ()
- void [loop](#) ()
- std::shared_ptr< spdlog::logger > [logger](#) ()
- virtual void [onMessage](#) ([Message](#) &message)
- virtual void [onOpen](#) ([Open](#) &open)
- virtual void [onClose](#) ([Close](#) &close)
- virtual void [onError](#) ([Error](#) &error)
- virtual void [onPing](#) ([Ping](#) &ping)
- virtual void [onPong](#) ([Pong](#) &pong)
- virtual void [onFragment](#) ([Fragment](#) &fragment)

8.17.1 Detailed Description

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

8.17.2 Constructor & Destructor Documentation

8.17.2.1 WebsocketClient()

```
yaodaq::WebsocketClient::WebsocketClient (
    const std::string & name,
    const std::string & type = "YAODAQWebsocketClient" ) [explicit]
```

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

```
00020                                     : m_Identifier( type,
00021                                     name )
00021 {
00022     ix::initNetSystem();
00023
00024     m_Identifier.generateKey( Domain::Application, Class::Client, Family::WebsocketClient );
00025     m_Logger.setName( m_Identifier.get() );
00026     m_Logger.addSink( std::make_shared<spdlog::sinks::stdout_color_sink_mt>() );
00027
00028     ix::WebSocketHttpHeaders header{ { "id", m_Identifier.get() } };
00029     setExtraHeaders( header );
00030
00031     setOnMessageCallback(
00032         [this]( const ix::WebSocketMessagePtr& msg )
00033         {
00034             if( msg->type == ix::WebSocketMessageType::Message ) { logger()->error( "{}", msg->str ); }
00035             else if( msg->type == ix::WebSocketMessageType::Error )
00036             {
00037                 std::cout << "Connection error: " << msg->errorInfo.reason << std::endl;
00038             }
00039             else if( msg->type == ix::WebSocketMessageType::Close )
00040             {
00041                 disableAutomaticReconnection();
00042                 if( msg->closeInfo.code == magic_enum::enum_integer(
00043                     StatusCode::CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED ) )
00044                 {
00045                     logger()->critical( fmt::format( fg( fmt::color::red ) | fmt::emphasis::bold,
00046                         msg->closeInfo.reason ) );
00047                     close();
00048                     // throw Exception( StatusCode::CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED,
00049                         msg->closeInfo.reason );
00050                 }
00051             }
00052         }
00053     );
00054 }
```

8.17.2.2 ~WebsocketClient()

```
yaodaq::WebsocketClient::~~WebsocketClient ( ) [virtual]
```

Definition at line 68 of file [WebsocketClient.cpp](#).

```
00069 {
00070     stop();
00071     ix::uninitNetSystem();
00072 }
```

8.17.3 Member Function Documentation

8.17.3.1 logger()

```
std::shared_ptr< spdlog::logger > yaodaq::WebsocketClient::logger ( ) [inline]
```

Definition at line 37 of file [WebsocketClient.hpp](#).

```
00037 { return m_Logger.logger(); }
```

8.17.3.2 loop()

```
void yaodaq::WebsocketClient::loop ( )
```

Definition at line 93 of file [WebsocketClient.cpp](#).

```
00094 {
00095     WebsocketClient::start();
00096     m_Looper.supressInstance();
00097     onRaisingSignal();
00098 }
```

8.17.3.3 onClose()

```
void yaodaq::WebsocketClient::onClose (
    Close & close ) [virtual]
Definition at line 58 of file WebsocketClient.cpp.
00058 {}
```

8.17.3.4 onError()

```
void yaodaq::WebsocketClient::onError (
    Error & error ) [virtual]
Definition at line 60 of file WebsocketClient.cpp.
00060 {}
```

8.17.3.5 onFragment()

```
void yaodaq::WebsocketClient::onFragment (
    Fragment & fragment ) [virtual]
Definition at line 66 of file WebsocketClient.cpp.
00066 {}
```

8.17.3.6 onMessage()

```
void yaodaq::WebsocketClient::onMessage (
    Message & message ) [virtual]
Definition at line 54 of file WebsocketClient.cpp.
00054 {}
```

8.17.3.7 onOpen()

```
void yaodaq::WebsocketClient::onOpen (
    Open & open ) [virtual]
Definition at line 56 of file WebsocketClient.cpp.
00056 {}
```

8.17.3.8 onPing()

```
void yaodaq::WebsocketClient::onPing (
    Ping & ping ) [virtual]
Definition at line 62 of file WebsocketClient.cpp.
00062 {}
```

8.17.3.9 onPong()

```
void yaodaq::WebsocketClient::onPong (
    Pong & pong ) [virtual]
Definition at line 64 of file WebsocketClient.cpp.
00064 {}
```

8.17.3.10 start()

```
void yaodaq::WebsocketClient::start ( )
Definition at line 74 of file WebsocketClient.cpp.
00075 {
00076     if( getReadyState() == ix::ReadyState::Closed || getReadyState() == ix::ReadyState::Closing )
00077     {
```



```

00078     logger()->trace( "Client started. Connected to {}", getUrl() );
00079     ix::WebSocket::start();
00080 }
00081 }

```

8.17.3.11 stop()

void yaodaq::WebsocketClient::stop ()

Definition at line 83 of file [WebsocketClient.cpp](#).

```

00084 {
00085     if( getReadyState() == ix::ReadyState::Open || getReadyState() == ix::ReadyState::Connecting )
00086     {
00087         logger()->trace( "Client stopped" );
00088         ix::WebSocket::stop();
00089         while( getReadyState() != ix::ReadyState::Closed ) { std::this_thread::sleep_for(
std::chrono::microseconds( 1 ) ); }
00090     }
00091 }

```

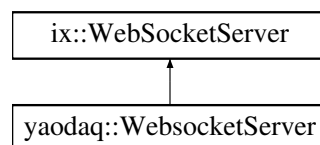
The documentation for this class was generated from the following files:

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

8.18 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 &handshakeTimeout↵
Secs=ix::WebsocketServer::kDefaultHandShakeTimeoutSecs, const int &addressFamily=ix::SocketServer↵
::kDefaultAddressFamily, const std::string &type="YAODAQWebsocketServer")
- virtual [~WebsocketServer](#) ()
- void [loop](#) ()
- void [start](#) ()
- void [stop](#) (bool useless=true)
- void [listen](#) ()
- virtual void [onMessage](#) ([Message](#) &message)
- virtual void [onOpen](#) ([Open](#) &open)
- virtual void [onClose](#) ([Close](#) &close)
- virtual void [onError](#) ([Error](#) &error)
- virtual void [onPing](#) ([Ping](#) &ping)
- virtual void [onPong](#) ([Pong](#) &pong)
- virtual void [onFragment](#) ([Fragment](#) &fragment)
- void [setVerbosity](#) (const [yaodaq::LoggerHandler::Verbosity](#) &verbosity)
- std::shared_ptr< spdlog::logger > [logger](#) ()
- void [sendToLoggers](#) ([Message](#) &message)
- void [sendToLoggers](#) (const [Message](#) &message)
- void [sendToLoggers](#) ([Message](#) &message, ix::WebSocket &webSocket)
- void [sendToLoggers](#) (const [Message](#) &message, ix::WebSocket &webSocket)

8.18.1 Detailed Description

Definition at line 31 of file [WebsocketServer.hpp](#).

8.18.2 Constructor & Destructor Documentation

8.18.2.1 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 = "YAODAQWebsocketServer" ) [explicit]
```

Definition at line 27 of file [WebsocketServer.cpp](#).

```
00027
:
00028 ix::WebsocketServer( port, host, backlog, maxConnections, handshakeTimeoutSecs, addressFamily ),
    m_Identifier( type, name )
00029 {
00030     ix::initNetSystem();
00031
00032     m_Identifier.generateKey( Domain::Application, Class::Server, Family::WebsocketServer );
00033     m_Logger.setName( m_Identifier.get() );
00034     m_Logger.addSink( std::make_shared<spdlog::sinks::stdout_color_sink_mt>() );
00035
00036     setConnectionFactory( []() { return std::make_shared<ConnectionState>(); } );
00037
00038     setOnClientMessageCallback(
00039         [this]( std::shared_ptr<ix::ConnectionState> connectionState, ix::Websocket& websocket, const
ix::WebsocketMessagePtr& msg )
00040         {
00041             // The ConnectionState object contains information about the connection
00042             std::shared_ptr<ConnectionState> connection = std::static_pointer_cast<ConnectionState>(
connectionState );
00043             if( msg->type == ix::WebsocketMessageType::Message ) {}
00044             else if( msg->type == ix::WebsocketMessageType::Open )
00045             {
00046                 // Check if a client with the same name is already connected;
00047                 connection->computeId( getHost() + ":" + std::to_string( getPort() ), Identifier::parse(
msg->openInfo.headers["id"] ) );
00048                 if( connection->isTerminated() )
00049                 {
00050                     logger()->error( fmt::format( fg( fmt::color::red ) | fmt::emphasis::bold, "One client with
the name \"{}\" is already connected !", Identifier::parse( msg->openInfo.headers["id"] ).getName() )
);
00051                     websocket.stop( magic_enum::enum_integer(
StatusCode::CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED ),
00052                         fmt::format( "One client with the name \"{}\" is already connected to
ws{}://{}:{}", Identifier::parse( msg->openInfo.headers["id"] ).getName(), "", getHost(), getPort()
) ) );
00053                     std::this_thread::sleep_for( std::chrono::milliseconds( 10 ) );
00054                     return;
00055                 }
00056                 addClient( Identifier::parse( msg->openInfo.headers["id"] ), websocket );
00057                 Open open( msg->openInfo, connection );
00058                 sendToLoggers( open, websocket );
00059                 onOpen( open );
00060             }
00061             else if( msg->type == ix::WebsocketMessageType::Close )
00062             {
00063                 Close close( msg->closeInfo, connection );
00064                 sendToLoggers( close, websocket );
00065                 onClose( close );
00066                 removeClient( websocket );
00067             }
00068             else if( msg->type == ix::WebsocketMessageType::Error )
00069             {
00070                 Error error( msg->errorInfo, connection );
00071                 sendToLoggers( error, websocket );
00072                 onError( error );
00073             }
00074             else if( msg->type == ix::WebsocketMessageType::Ping )
```

```

00075     {
00076         Ping ping( msg, connection );
00077         sendToLoggers( ping, websocket );
00078         onPing( ping );
00079     }
00080     else if( msg->type == ix::WebSocketMessageType::Pong )
00081     {
00082         Pong pong( msg, connection );
00083         sendToLoggers( pong, websocket );
00084         onPong( pong );
00085     }
00086     else if( msg->type == ix::WebSocketMessageType::Fragment )
00087     {
00088         Fragment fragment( msg, connection );
00089         sendToLoggers( fragment, websocket );
00090         onFragment( fragment );
00091     }
00092     } );
00093 }

```

8.18.2.2 ~WebsocketServer()

yaodag::WebsocketServer::~~WebsocketServer () [virtual]

Definition at line 198 of file [WebsocketServer.cpp](#).

```

00199 {
00200     stop();
00201     ix::uninitNetSystem();
00202 }

```

8.18.3 Member Function Documentation

8.18.3.1 listen()

void yaodag::WebsocketServer::listen ()

Definition at line 160 of file [WebsocketServer.cpp](#).

```

00161 {
00162     if( !m_isListening )
00163     {
00164         std::pair<bool, std::string> ret = ix::WebSocketServer::listen();
00165         if( ret.first )
00166         {
00167             m_isListening = ret.first;
00168             logger()->info( "Server listening on {0}:{1}", getHost(), getPort() );
00169         }
00170         else
00171             throw Exception( StatusCode::LISTEN_ERROR, ret.second );
00172     }
00173 }

```

8.18.3.2 logger()

std::shared_ptr< spdlog::logger > yaodag::WebsocketServer::logger () [inline]

Definition at line 53 of file [WebsocketServer.hpp](#).

```

00053 { return m_Logger.logger(); }

```

8.18.3.3 loop()

void yaodag::WebsocketServer::loop ()

Definition at line 204 of file [WebsocketServer.cpp](#).

```

00205 {
00206     listen();
00207     start();
00208     m_Looper.supressInstance();
00209     onRaisingSignal();
00210 }

```

8.18.3.4 onClose()

```
void yaodaq::WebsocketServer::onClose (
    Close & close ) [virtual]
```

Definition at line 150 of file [WebsocketServer.cpp](#).
00150 {}

8.18.3.5 onError()

```
void yaodaq::WebsocketServer::onError (
    Error & error ) [virtual]
```

Definition at line 152 of file [WebsocketServer.cpp](#).
00152 {}

8.18.3.6 onFragment()

```
void yaodaq::WebsocketServer::onFragment (
    Fragment & fragment ) [virtual]
```

Definition at line 158 of file [WebsocketServer.cpp](#).
00158 {}

8.18.3.7 onMessage()

```
void yaodaq::WebsocketServer::onMessage (
    Message & message ) [virtual]
```

Definition at line 146 of file [WebsocketServer.cpp](#).
00146 {}

8.18.3.8 onOpen()

```
void yaodaq::WebsocketServer::onOpen (
    Open & open ) [virtual]
```

Definition at line 148 of file [WebsocketServer.cpp](#).
00148 {}

8.18.3.9 onPing()

```
void yaodaq::WebsocketServer::onPing (
    Ping & ping ) [virtual]
```

Definition at line 154 of file [WebsocketServer.cpp](#).
00154 {}

8.18.3.10 onPong()

```
void yaodaq::WebsocketServer::onPong (
    Pong & pong ) [virtual]
```

Definition at line 156 of file [WebsocketServer.cpp](#).
00156 {}

8.18.3.11 sendToLoggers() [1/4]

```
void yaodaq::WebsocketServer::sendToLoggers (
    const Message & message )
```

Definition at line 138 of file [WebsocketServer.cpp](#).
00139 {

```

00140     for( std::map<Identifier, ix::WebSocket>::iterator it = m_Clients.begin(); it != m_Clients.end();
++it )
00141     {
00142         if( magic_enum::enum_cast<Family>( it->first.getFamily() ).value() == Family::Logger )
it->second.send( message.dump() );
00143     }
00144 }

```

8.18.3.12 sendToLoggers() [2/4]

```

void yaodaq::WebsocketServer::sendToLoggers (
    const Message & message,
    ix::WebSocket & websocket )

```

Definition at line 130 of file [WebsocketServer.cpp](#).

```

00131 {
00132     for( std::map<Identifier, ix::WebSocket>::iterator it = m_Clients.begin(); it != m_Clients.end();
++it )
00133     {
00134         if( magic_enum::enum_cast<Family>( it->first.getFamily() ).value() == Family::Logger && &websocket
!= &it->second ) it->second.send( message.dump() );
00135     }
00136 }

```

8.18.3.13 sendToLoggers() [3/4]

```

void yaodaq::WebsocketServer::sendToLoggers (
    Message & message )

```

Definition at line 122 of file [WebsocketServer.cpp](#).

```

00123 {
00124     for( std::map<Identifier, ix::WebSocket>::iterator it = m_Clients.begin(); it != m_Clients.end();
++it )
00125     {
00126         if( magic_enum::enum_cast<Family>( it->first.getFamily() ).value() == Family::Logger )
it->second.send( message.dump() );
00127     }
00128 }

```

8.18.3.14 sendToLoggers() [4/4]

```

void yaodaq::WebsocketServer::sendToLoggers (
    Message & message,
    ix::WebSocket & websocket )

```

Definition at line 114 of file [WebsocketServer.cpp](#).

```

00115 {
00116     for( std::map<Identifier, ix::WebSocket>::iterator it = m_Clients.begin(); it != m_Clients.end();
++it )
00117     {
00118         if( magic_enum::enum_cast<Family>( it->first.getFamily() ).value() == Family::Logger && &websocket
!= &it->second ) it->second.send( message.dump() );
00119     }
00120 }

```

8.18.3.15 setVerbosity()

```

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

```

Definition at line 196 of file [WebsocketServer.cpp](#).

```

00196 { m_Logger.setVerbosity( verbosity ); }

```

8.18.3.16 start()

```

void yaodaq::WebsocketServer::start ( )

```

Definition at line 175 of file [WebsocketServer.cpp](#).

```

00176 {
00177     if( !m_isStarted )

```

```
00178 {  
00179     m_isStarted = true;  
00180     logger()->trace( "Server started" );  
00181     ix::WebSocketServer::start();  
00182 }  
00183 }
```

8.18.3.17 stop()

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

Definition at line 185 of file [WebsocketServer.cpp](#).

```
00186 {  
00187     if( !m_isStopped )  
00188     {  
00189         m_isStopped = true;  
00190         useless      = !useless;  
00191         logger()->trace( "Server stopped" );  
00192         ix::WebSocketServer::stop();  
00193     }  
00194 }
```

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

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

Chapter 9

File Documentation

9.1 docs/License.md File Reference

9.2 docs/Third-party licenses.md File Reference

9.3 yaodag/Classification.hpp File Reference

```
#include <cstdint>
```

Namespaces

- namespace `yaodag`

Enumerations

- enum class `yaodag::Domain` : `std::uint_least8_t` { `yaodag::Unknown` = 0 , `yaodag::Application` = 1 , `yaodag::Web` = 2 }
- enum class `yaodag::Class` : `std::uint_least8_t` { `yaodag::Unknown` = 0 , `yaodag::Server` , `yaodag::Client` , `yaodag::Module` , `yaodag::Board` }
- enum class `yaodag::Family` : `std::uint_least16_t` { `yaodag::Unknown` = 0 , `yaodag::WebSocketServer` , `yaodag::WebSocketClient` , `yaodag::Logger` , `yaodag::Controller` , `yaodag::Configurator` , `yaodag::SlowController` , `yaodag::Viewer` , `yaodag::Analyser` , `yaodag::FileWriter` }

9.4 Classification.hpp

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

```
00001 #ifndef YAODAG_CLASSIFICATION_HPP
00002 #define YAODAG_CLASSIFICATION_HPP
00003
00008 #include <cstdint>
00009
00010 namespace yaodag
00011 {
00012
00013 /* The domain specify if we are on browser or standalone program */
00014 enum class Domain : std::uint_least8_t
00015 {
00016     Unknown = 0,
00017     Application = 1,
00018     Web = 2,
00019 };
00020
00021 /* The class define if we are a server, module, or board */
00022 enum class Class : std::uint_least8_t
00023 {
00024     Unknown = 0,
```

```

00025     Server,
00026     Client,
00027     // Module is a client with start stop etc...
00028     Module,
00029     // Board is a module with a connector
00030     Board,
00031 };
00032
00033 /* the family */
00034 enum class Family : std::uint_least16_t
00035 {
00036     Unknown = 0,
00037     WebSocketServer,
00038     WebSocketClient,
00039     Logger,
00040     Controller,
00041     Configurator,
00042     SlowController,
00043     Viewer,
00044     Analyser,
00045     FileWriter,
00046 };
00047
00048 } // namespace yaodaq
00049
00050 #endif // YAODAQ_CLASSIFICATION_HPP

```

9.5 yaodaq/ConnectionState.hpp File Reference

```

#include <algorithm>
#include <iostream>
#include <ixwebsocket/IXConnectionState.h>
#include <list>
#include <mutex>
#include <string>
#include <utility>

```

Data Structures

- class [yaodaq::ConnectionState](#)

Namespaces

- namespace [yaodaq](#)

9.6 ConnectionState.hpp

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

```

00001 #ifndef YAODAQ_CONNECTIONSTATE
00002 #define YAODAQ_CONNECTIONSTATE
00003
00008 #include <algorithm>
00009 #include <iostream>
00010 #include <ixwebsocket/IXConnectionState.h>
00011 #include <list>
00012 #include <mutex>
00013 #include <string>
00014 #include <utility>
00015
00016 namespace yaodaq
00017 {
00018
00019     class Identifier;
00020
00021     class ConnectionState : public ix::ConnectionState
00022     {
00023     public:
00024         virtual void computeId( const std::string& host, const Identifier& id ) final;
00025         ConnectionState();
00026         virtual ~ConnectionState();
00027
00028     private:

```



```

00029     static std::list<std::pair<std::string, std::string>> m_Ids;
00030     std::pair<std::string, std::string> m_Pair;
00031     std::mutex m_Mutex;
00032 };
00033
00034 } // namespace yaodaq
00035
00036 #endif

```

9.7 yaodaq/Exception.hpp File Reference

```

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

```

Data Structures

- class [yaodaq::Exception](#)

Namespaces

- namespace [yaodaq](#)

9.8 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&
00029             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         static const std::int_least32_t m_Code{ 0 };
00038         static std::string m_Description;
00039         static std::string m_Message;
00040         void constructMessage();
00041     };
00042
00043 } // namespace yaodaq
00044
00045 #endif

```

9.9 yaodaq/Identifier.hpp File Reference

```
#include "yaodaq/Key.hpp"
#include <cstdint>
#include <string>
```

Data Structures

- class [yaodaq::Identifier](#)

Namespaces

- namespace [yaodaq](#)

9.10 Identifier.hpp

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

```
00001 #ifndef YAODAQ_IDENTIFIER_HPP
00002 #define YAODAQ_IDENTIFIER_HPP
00003
00008 #include "yaodaq/Key.hpp"
00009
00010 #include <cstdint>
00011 #include <string>
00012
00013 namespace yaodaq
00014 {
00015
00016 class Identifier
00017 {
00018 public:
00019     Identifier() = default;
00020     Identifier( const std::string& type, const std::string& name );
00021     void generateKey( const Domain& domain = Domain::Unknown, const Class& c_class =
Class::Unknown, const Family& family = Family::Unknown );
00022     [[nodiscard]] std::string getDomain() const;
00023     [[nodiscard]] std::string getClass() const;
00024     [[nodiscard]] std::string getFamily() const;
00025     [[nodiscard]] std::string getType() const;
00026     [[nodiscard]] std::string getName() const;
00027     [[nodiscard]] Key getKey() const;
00028     [[nodiscard]] std::string get() const;
00029     bool empty() const;
00030     static Identifier parse( const std::string& );
00031     bool operator<( const Identifier& ) const;
00032
00033 private:
00034     std::string m_Type{ "Unknown" };
00035     std::string m_Name{ "Unknown" };
00036     Key m_Key;
00037 };
00038
00039 } // namespace yaodaq
00040
00041 #endif // YAODAQ_IDENTIFIER_HPP
```

9.11 yaodaq/Interrupt.hpp File Reference

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

Data Structures

- class [yaodaq::Interrupt](#)

Namespaces

- namespace [yaodag](#)

9.12 Interrupt.hpp

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

```

00001 #ifndef YAODAG_HANDLER_HPP
00002 #define YAODAG_HANDLER_HPP
00003
00008 #include "yaodag/Signal.hpp"
00009
00010 #include <atomic>
00011 #include <csignal>
00012 #include <mutex>
00013
00014 namespace yaodag
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 yaodag
00035
00036 #endif // YAODAG_HANDLER_HPP

```

9.13 yaodag/IXWebsocketMessage.hpp File Reference

```

#include "yaodag/ConnectionState.hpp"
#include "yaodag/Message.hpp"
#include <ixwebsocket/IXWebSocketCloseInfo.h>
#include <ixwebsocket/IXWebSocketErrorInfo.h>
#include <ixwebsocket/IXWebSocketMessage.h>
#include <ixwebsocket/IXWebSocketOpenInfo.h>
#include <map>
#include <memory>
#include <string>

```

Data Structures

- class [yaodag::IXMessage](#)
- class [yaodag::Open](#)
- class [yaodag::Close](#)
- class [yaodag::Error](#)
- class [yaodag::Ping](#)
- class [yaodag::Pong](#)
- class [yaodag::Fragment](#)

Namespaces

- namespace [yaodag](#)

9.14 IXWebsocketMessage.hpp

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

```

00001 #ifndef YAODAQ_IXWEBSOCKETMESSAGE
00002 #define YAODAQ_IXWEBSOCKETMESSAGE
00003
00008 #include "yaodag/ConnectionState.hpp"
00009 #include "yaodag/Message.hpp"
00010
00011 #include <iwebsocket/IXWebSocketCloseInfo.h>
00012 #include <iwebsocket/IXWebSocketErrorInfo.h>
00013 #include <iwebsocket/IXWebSocketMessage.h>
00014 #include <iwebsocket/IXWebSocketOpenInfo.h>
00015 #include <map>
00016 #include <memory>
00017 #include <string>
00018
00019 namespace yaodag
00020 {
00021
00022 class IXMessage : public Message
00023 {
00024 public:
00025     explicit IXMessage( const MessageType& messageType );
00026
00027 protected:
00028     void setConnectionStateInfos( std::shared_ptr<ConnectionState>& connectionState );
00029 };
00030
00031 class Open : public IXMessage
00032 {
00033 public:
00034     explicit Open( const ix::WebSocketOpenInfo& openInfo );
00035     Open( const ix::WebSocketOpenInfo& openInfo, std::shared_ptr<ConnectionState>& connectionState );
00036     std::string getURI() const;
00037     std::map<std::string, std::string> getHeaders() const;
00038     std::string getProtocol() const;
00039 };
00040
00041 class Close : public IXMessage
00042 {
00043 public:
00044     explicit Close( const ix::WebSocketCloseInfo& closeInfo );
00045     Close( const ix::WebSocketCloseInfo& closeInfo, std::shared_ptr<ConnectionState>& connectionState );
00046     std::uint16_t getCode() const;
00047     std::string getReason() const;
00048     bool getRemote() const;
00049 };
00050
00051 class Error : public IXMessage
00052 {
00053 public:
00054     explicit Error( const ix::WebSocketErrorInfo& errorInfo );
00055     Error( const ix::WebSocketErrorInfo& errorInfo, std::shared_ptr<ConnectionState>& connectionState );
00056     std::uint16_t getRetries() const;
00057     double getWaitTime() const;
00058     int getHttpStatus() const;
00059     std::string getReason() const;
00060     bool getDecompressionError() const;
00061 };
00062
00063 class Ping : public IXMessage
00064 {
00065 public:
00066     explicit Ping( const ix::WebSocketMessagePtr& ping );
00067     Ping( const ix::WebSocketMessagePtr& ping, std::shared_ptr<ConnectionState>& connectionState );
00068 };
00069
00070 class Pong : public IXMessage
00071 {
00072 public:
00073     explicit Pong( const ix::WebSocketMessagePtr& pong );
00074     Pong( const ix::WebSocketMessagePtr& pong, std::shared_ptr<ConnectionState>& connectionState );
00075 };
00076
00077 class Fragment : public IXMessage
00078 {
00079 public:
00080     explicit Fragment( const ix::WebSocketMessagePtr& fragment );
00081     Fragment( const ix::WebSocketMessagePtr& fragment, std::shared_ptr<ConnectionState>& connectionState );
00082 };
00083
00084 } // namespace yaodag
00085 #endif

```

9.15 yaodaq/Key.hpp File Reference

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

Data Structures

- class [yaodaq::Key](#)

Namespaces

- namespace [yaodaq](#)

9.16 Key.hpp

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

```
00001 #ifndef YAODAQ_KEY_HPP
00002 #define YAODAQ_KEY_HPP
00003
00008 #include "yaodaq/Classification.hpp"
00009
00010 #include <cstdint>
00011
00012 namespace yaodaq
00013 {
00014
00015 class Key
00016 {
00017 private:
00018     std::int_least32_t m_Key{ 0 };
00019
00020 public:
00021     Key() = default;
00022     explicit Key( const Domain& domain, const Class& c_class, const Family& family );
00023     [[nodiscard]] std::int_least8_t getDomain() const;
00024     [[nodiscard]] std::int_least8_t getClass() const;
00025     [[nodiscard]] std::int_least16_t getFamily() const;
00026     [[nodiscard]] std::int_least32_t getKey() const;
00027 };
00028
00029 } // namespace yaodaq
00030
00031 #endif // YAODAQ_KEY_HPP
```

9.17 yaodaq/LoggerHandler.hpp File Reference

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

Data Structures

- class [yaodaq::LoggerHandler](#)

Namespaces

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

Typedefs

- using [spdlog::sink_ptr](#) = std::shared_ptr< spdlog::sinks::sink >

9.18 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         ~LoggerHandler();
00036         void setVerbosity( const Verbosity& verbosity );
00037         void setName( const std::string& );
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

```

9.19 yaodaq/Looper.hpp File Reference

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

Data Structures

- class [yaodaq::Looper](#)

Namespaces

- namespace [yaodaq](#)

9.20 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

```

9.21 yaodaq/Message.hpp File Reference

```

#include "nlohmann/json.hpp"
#include "yaodaq/MessageType.hpp"
#include <string>

```

Data Structures

- class [yaodaq::Message](#)

Namespaces

- namespace [yaodaq](#)

9.22 Message.hpp

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

```

00001 #ifndef YAODAQ_MESSAGE
00002 #define YAODAQ_MESSAGE
00003
00008 #include "nlohmann/json.hpp"
00009 #include "yaodaq/MessageType.hpp"
00010
00011 #include <string>
00012
00013 namespace yaodaq
00014 {
00015
00016 class Identifier;
00017
00018 class Message
00019 {
00020 public:
00021     Message();
00022     explicit Message( const nlohmann::json& content, const MessageType& messageType =
        MessageType::Unknown );
00023     explicit Message( const std::string& content, const MessageType& messageType = MessageType::Unknown
        );
00024     explicit Message( const char* content, const MessageType& messageType = MessageType::Unknown );
00025     std::string dump( const int& indent = -1, const char& indent_char = ' ', const bool& ensure_ascii
        = false, const nlohmann::detail::error_handler_t& error_handler =
        nlohmann::detail::error_handler_t::strict ) const;
00026     nlohmann::json get() const;
00027     nlohmann::json getContent() const;
00028     std::string getTypeName() const;
00029     MessageType getTypeValue() const;
00030     std::string getTimestamp() const;
00031     std::time_t getTime() const;
00032     Identifier getIdentifier() const;
00033     void setFrom( const Identifier& );

```

```

00034
00035 protected:
00036     explicit Message( const MessageType& messageType );
00037     void setContent( const nlohmann::json& content );
00038     void setContent( const std::string& content );
00039     void setContent( const char* content );
00040
00041 private:
00042     nlohmann::json m_JSON;
00043 };
00044
00045 } // namespace yaodaq
00046
00047 #endif // YAODAQ_MESSAGE

```

9.23 yaodaq/MessageType.hpp File Reference

```

#include "yaodaq/Interrupt.hpp"
#include <cstdint>
#include <iosfwd>

```

Namespaces

- namespace [yaodaq](#)

Enumerations

- enum class [yaodaq::MessageType](#) : std::int_least16_t {
[yaodaq::Open](#) = -1 , [yaodaq::Close](#) = -2 , [yaodaq::Error](#) = -3 , [yaodaq::Ping](#) = -4 ,
[yaodaq::Pong](#) = -5 , [yaodaq::Fragment](#) = -6 , [yaodaq::Unknown](#) = 0 }

Functions

- std::ostream & [yaodaq::operator<<](#) (std::ostream &os, const MessageType &messageTypes)

9.24 MessageType.hpp

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

```

00001 #ifndef YAODAQ_MESSAGETYPE
00002 #define YAODAQ_MESSAGETYPE
00003
00007 #include "yaodaq/Interrupt.hpp"
00008
00009 #include <cstdint>
00010 #include <iosfwd>
00011
00012 namespace yaodaq
00013 {
00014
00015 enum class MessageType : std::int_least16_t
00016 {
00017     // IXWebSocket MessageType (Message is not set here)
00018     Open      = -1,
00019     Close     = -2,
00020     Error     = -3,
00021     Ping     = -4,
00022     Pong     = -5,
00023     Fragment = -6,
00024     // Unknown should not be used !
00025     Unknown  = 0,
00026 };
00027
00028 inline std::ostream& operator<<( std::ostream& os, const MessageType& messageTypes ) { return os <<
    static_cast<std::int_least8_t>( messageTypes ); }
00029
00030 } // namespace yaodaq
00031
00032 #endif // YAODAQ_MESSAGETYPE

```


9.25 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 }

9.26 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
```

9.27 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 }

9.28 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

```

9.29 yaodaq/StatusCode.hpp File Reference

```
#include <stdint>
```

Namespaces

- namespace `yaodaq`

Enumerations

- enum class `yaodaq::StatusCode` : `std::int_least32_t` { `yaodaq::SUCCESS` = 0 , `yaodaq::LISTEN_ERROR` , `yaodaq::WRONG_NUMBER_PARAMETERS` , `yaodaq::CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED` = 4999 }

9.30 StatusCode.hpp

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

```

00001 #ifndef YAODAQ_STATUSCODE
00002 #define YAODAQ_STATUSCODE
00003
00008 #include <stdint>
00009
00010 namespace yaodaq
00011 {
00012
00013 enum class StatusCode : std::int_least32_t
00014 {
00015     SUCCESS = 0,
00016     LISTEN_ERROR,
00017     WRONG_NUMBER_PARAMETERS,
00018     CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED = 4999,
00019 };
00020
00021 } // namespace yaodaq
00022
00023 #endif

```

9.31 yaodaq/Version.hpp File Reference

```
#include <stdint>
#include <semver.hpp>
```

```
#include <string>
```

Data Structures

- class [yaodaq::Version](#)

Namespaces

- namespace [yaodaq](#)

9.32 Version.hpp

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

```
00001 #ifndef YAODAQ_VERSION_HPP
00002 #define YAODAQ_VERSION_HPP
00003
00008 #include <stdint>
00009 #include <semver.hpp>
00010 #include <string>
00011
00012 namespace yaodaq
00013 {
00014
00015 class Version : public semver::version
00016 {
00017 public:
00018     constexpr Version( const std::uint8_t& mj, const std::uint8_t& mn, const std::uint8_t& pt, const
        semver::prerelease& prt = semver::prerelease::none, const std::uint8_t& prn = 0 ) noexcept :
        semver::version( mj, mn, pt, prt, prn ) {}
00019     explicit constexpr Version( const std::string_view& str ) : semver::version( str ) {}
00020     constexpr Version() = default;
00021     std::uint8_t getMajor();
00022     std::uint8_t getMinor();
00023     std::uint8_t getPatch();
00024     std::string getPreRelease();
00025     std::uint8_t getPreReleaseNumber();
00026 };
00027
00028 } // namespace yaodaq
00029
00030 #endif // YAODAQ_VERSION_HPP
```

9.33 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>
```

Data Structures

- class [yaodaq::WebsocketClient](#)

Namespaces

- namespace [yaodaq](#)

9.34 WebsocketClient.hpp

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

```

00001 #ifndef YAODAQ_WEBSOCKETCLIENT
00002 #define YAODAQ_WEBSOCKETCLIENT
00003
00008 #include "yaodq/Identifier.hpp"
00009 #include "yaodq/Interrupt.hpp"
00010 #include "yaodq/LoggerHandler.hpp"
00011 #include "yaodq/Looper.hpp"
00012
00013 #include <ixwebsocket/IXWebSocket.h>
00014 #include <memory>
00015 #include <spdlog/spdlog.h>
00016 #include <string>
00017
00018 namespace yaodq
00019 {
00020
00021 class Message;
00022 class Open;
00023 class Close;
00024 class Error;
00025 class Ping;
00026 class Pong;
00027 class Fragment;
00028
00029 class WebSocketClient : public ix::WebSocket
00030 {
00031 public:
00032     explicit WebSocketClient( const std::string& name, const std::string& type = "YAODAQWebSocketClient"
00033 );
00034     virtual ~WebSocketClient();
00035     void start();
00036     void stop();
00037     void loop();
00038     std::shared_ptr<spdlog::logger> logger() { return m_Logger.logger(); }
00039
00040     virtual void onMessage( Message& message );
00041     virtual void onOpen( Open& open );
00042     virtual void onClose( Close& close );
00043     virtual void onError( Error& error );
00044     virtual void onPing( Ping& ping );
00045     virtual void onPong( Pong& pong );
00046     virtual void onFragment( Fragment& fragment );
00047 private:
00048     void onRaisingSignal();
00049     Identifier m_Identifier;
00050     LoggerHandler m_Logger;
00051     Looper m_Looper;
00052 };
00053
00054 } // namespace yaodq
00055
00056 #endif

```

9.35 yaodq/WebsocketServer.hpp File Reference

```

#include "yaodq/Identifier.hpp"
#include "yaodq/Interrupt.hpp"
#include "yaodq/LoggerHandler.hpp"
#include "yaodq/Looper.hpp"
#include <ixwebsocket/IXWebSocketServer.h>
#include <map>
#include <memory>
#include <mutex>
#include <spdlog/spdlog.h>
#include <string>

```

Data Structures

- class [yaodq::WebSocketServer](#)

Namespaces

- namespace [yaodq](#)

9.36 WebsocketServer.hpp

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

```

00001 #ifndef YAODAQ_WEBSOCKETSERVER
00002 #define YAODAQ_WEBSOCKETSERVER
00003
00008 #include "yaodag/Identifier.hpp"
00009 #include "yaodag/Interrupt.hpp"
00010 #include "yaodag/LoggerHandler.hpp"
00011 #include "yaodag/Looper.hpp"
00012
00013 #include <ixwebsocket/IXWebSocketServer.h>
00014 #include <map>
00015 #include <memory>
00016 #include <mutex>
00017 #include <spdlog/spdlog.h>
00018 #include <string>
00019
00020 namespace yaodag
00021 {
00022
00023 class Message;
00024 class Open;
00025 class Close;
00026 class Error;
00027 class Ping;
00028 class Pong;
00029 class Fragment;
00030
00031 class WebsocketServer : public ix::WebSocketServer
00032 {
00033 public:
00034     explicit WebsocketServer( const std::string& name, const int& port = ix::SocketServer::kDefaultPort,
00035                             const std::string& host = ix::SocketServer::kDefaultHost, const int& backlog =
00036                             ix::SocketServer::kDefaultTcpBacklog,
00037                             const std::size_t& maxConnections =
00038                             ix::SocketServer::kDefaultMaxConnections, const int& handshakeTimeoutSecs =
00039                             ix::WebSocketServer::kDefaultHandShakeTimeoutSecs, const int& addressFamily =
00040                             ix::SocketServer::kDefaultAddressFamily,
00041                             const std::string& type = "YAODAQWebsocketServer" );
00042
00043     virtual ~WebsocketServer();
00044     void loop();
00045     void start();
00046     void stop( bool useless = true );
00047     void listen();
00048
00049     virtual void onMessage( Message& message );
00050     virtual void onOpen( Open& open );
00051     virtual void onClose( Close& close );
00052     virtual void onError( Error& error );
00053     virtual void onPing( Ping& ping );
00054     virtual void onPong( Pong& pong );
00055     virtual void onFragment( Fragment& fragment );
00056
00057     void setVerbosity( const yaodag::LoggerHandler::Verbosity& verbosity );
00058
00059     std::shared_ptr<spdlog::logger> logger() { return m_Logger.logger(); }
00060
00061     void sendToLoggers( Message& message );
00062     void sendToLoggers( const Message& message );
00063     void sendToLoggers( Message& message, ix::WebSocket& websocket );
00064     void sendToLoggers( const Message& message, ix::WebSocket& websocket );
00065
00066 private:
00067     void addClient( const Identifier&, ix::WebSocket& );
00068     void removeClient( ix::WebSocket& );
00069     void onRaisingSignal();
00070     bool m_isListening{ false };
00071     Identifier m_Identifier;
00072     LoggerHandler m_Logger;
00073     Interrupt m_Interrupt;
00074     Looper m_Looper;
00075     bool m_isStopped{ false };
00076     bool m_isStarted{ false };
00077     std::map<Identifier, ix::WebSocket&> m_Clients;
00078     std::mutex m_Mutex;
00079 };
00080
00081 } // namespace yaodag
00082
00083 #endif // YAODAQ_WEBSOCKETSERVER

```

9.37 yaodaq/ConnectionState.cpp File Reference

```
#include "yaodaq/ConnectionState.hpp"
#include "yaodaq/Identifier.hpp"
```

Namespaces

- namespace [yaodaq](#)

9.38 ConnectionState.cpp

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

```
00001
00005 #include "yaodaq/ConnectionState.hpp"
00006
00007 #include "yaodaq/Identifier.hpp"
00008
00009 namespace yaodaq
00010 {
00011
00012     std::list<std::pair<std::string, std::string>> ConnectionState::m_Ids{};
00013
00014     ConnectionState::ConnectionState() : ix::ConnectionState() {}
00015
00016     ConnectionState::~~ConnectionState()
00017     {
00018         std::lock_guard<std::mutex> guard( m_Mutex );
00019         m_Ids.remove( m_Pair );
00020     }
00021
00022     void ConnectionState::computeId( const std::string& host, const Identifier& id )
00023     {
00024         std::lock_guard<std::mutex> guard( m_Mutex );
00025         m_Pair = std::pair<std::string, std::string>( host, id.getName() );
00026
00027         if( id.empty() ) { _id = std::to_string( _globalId++ ); }
00028         else
00029         {
00030             std::list<std::pair<std::string, std::string>>::iterator found = std::find( m_Ids.begin(),
m_Ids.end(), m_Pair );
00031             if( found == m_Ids.end() )
00032             {
00033                 _id = id.getName();
00034                 m_Ids.push_back( m_Pair );
00035             }
00036             else
00037             {
00038                 setTerminated();
00039             }
00040         }
00041     }
00042
00043 } // namespace yaodaq
```

9.39 yaodaq/Exception.cpp File Reference

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

Namespaces

- namespace [yaodaq](#)

9.40 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 std::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

```

9.41 yaodaq/Identifier.cpp File Reference

```

#include "yaodaq/Identifier.hpp"
#include "yaodaq/Exception.hpp"
#include "yaodaq/Key.hpp"
#include "yaodaq/StatusCode.hpp"
#include <fmt/color.h>
#include <magic_enum.hpp>
#include <string>
#include <vector>

```

Namespaces

- namespace [yaodaq](#)

9.42 Identifier.cpp

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

```

00001
00005 #include "yaodaq/Identifier.hpp"
00006
00007 #include "yaodaq/Exception.hpp"
00008 #include "yaodaq/Key.hpp"
00009 #include "yaodaq/StatusCode.hpp"
00010
00011 #include <fmt/color.h>
00012 #include <magic_enum.hpp>
00013 #include <string>
00014 #include <vector>
00015
00016 namespace yaodaq
00017 {
00018
00019 bool Identifier::empty() const
00020 {
00021     if( get() == Identifier().get() ) return true;
00022     else
00023         return false;
00024 }
00025
00026 Identifier::Identifier( const std::string& type, const std::string& name ) : m_Type( type ), m_Name(
    name ) {}
00027
00028 void Identifier::generateKey( const Domain& domain, const Class& c_class, const Family& family ) {
    m_Key = Key( domain, c_class, family ); }
00029
00030 std::string Identifier::getDomain() const { return static_cast<std::string>( magic_enum::enum_name(
    magic_enum::enum_cast<Domain>( m_Key.getDomain() ).value() ) ); }

```

```

00031
00032 std::string Identifier::getClass() const { return static_cast<std::string>( magic_enum::enum_name(
    magic_enum::enum_cast<Class>( m_Key.getClass() ).value() ) ); }
00033
00034 std::string Identifier::getFamily() const { return static_cast<std::string>( magic_enum::enum_name(
    magic_enum::enum_cast<Family>( m_Key.getFamily() ).value() ) ); }
00035
00036 std::string Identifier::getType() const { return m_Type; }
00037
00038 std::string Identifier::getName() const { return m_Name; }
00039
00040 Key Identifier::getKey() const { return m_Key; }
00041
00042 std::string Identifier::get() const { return fmt::format( "{0}/{1}/{2}/{3}/{4}", getDomain(),
    getClass(), getFamily(), getType(), getName() ); }
00043
00044 Identifier Identifier::parse( const std::string& id )
00045 {
00046     std::vector<std::string> result;
00047     std::string tmp = id;
00048     std::string separator = "/";
00049     std::size_t second_pos = tmp.find( separator );
00050     while( second_pos != std::string::npos )
00051     {
00052         if( 0 != second_pos )
00053         {
00054             std::string word = tmp.substr( 0, second_pos - 0 );
00055             result.push_back( word );
00056         }
00057         else
00058             result.push_back( "" );
00059         tmp = tmp.substr( second_pos + separator.length() );
00060         second_pos = tmp.find( separator );
00061         if( second_pos == std::string::npos ) result.push_back( tmp );
00062     }
00063     if( result.size() == 5 )
00064     {
00065         Identifier identifier( result[3], result[4] );
00066         identifier.generateKey( magic_enum::enum_cast<Domain>( result[0] ).value(),
            magic_enum::enum_cast<Class>( result[1] ).value(), magic_enum::enum_cast<Family>( result[2] ).value()
        );
00067         return identifier;
00068     }
00069     else
00070     {
00071         throw Exception( StatusCode::WRONG_NUMBER_PARAMETERS, "Number of parameters in key should be 5
            (Domain/Class/Family/Type/Name) !" );
00072     }
00073 }
00074
00075 bool Identifier::operator<( const Identifier& identifier ) const { return this->get() <
    identifier.get(); }
00076
00077 } // namespace yaodaq

```

9.43 yaodaq/Interrupt.cpp File Reference

```

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

```

Namespaces

- namespace [yaodaq](#)

9.44 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 ); } );
00060         break;
00060         case Signal::ILL: std::signal( SIGILL, []( int ) -> void { m_Signal.store( Signal::ILL ); } );
00061         break;
00061         case Signal::SEGV: std::signal( SIGSEGV, []( int ) -> void { m_Signal.store( Signal::SEGV ); } );
00062         break;
00062         case Signal::INT: std::signal( SIGINT, []( int ) -> void { m_Signal.store( Signal::INT ); } );
00063         break;
00063         case Signal::TERM: std::signal( SIGTERM, []( int ) -> void { m_Signal.store( Signal::TERM ); } );
00064         break;
00064         default: break;
00065     }
00066 }
00067
00068 } // namespace yaodaq

```

9.45 yaodaq/IXWebsocketMessage.cpp File Reference

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

Namespaces

- namespace [yaodaq](#)

9.46 IXWebsocketMessage.cpp

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

```

00001
00005 #include "yaodag/IXWebsocketMessage.hpp"
00006
00007 namespace yaodag
00008 {
00009
00010 IMessage::IMessage( const MessageType& messageType ) : Message( messageType ) {}
00011
00012 void IMessage::setConnectionStateInfos( std::shared_ptr<ConnectionState>& connectionState )
00013 {
00014     nlohmann::json j = getContent();
00015     j["id"] = connectionState->getId();
00016     j["remote_ip"] = connectionState->getRemoteIp();
00017     j["remote_port"] = connectionState->getRemotePort();
00018     setContent( j );
00019 }
00020
00021 // Open
00022 Open::Open( const ix::WebSocketOpenInfo& openInfo ) : IMessage( MessageType::Open )
00023 {
00024     nlohmann::json j = getContent();
00025     j["uri"] = openInfo.uri;
00026     j["headers"] = openInfo.headers;
00027     j["protocol"] = openInfo.protocol;
00028     setContent( j );
00029 }
00030
00031 Open::Open( const ix::WebSocketOpenInfo& openInfo, std::shared_ptr<ConnectionState>& connectionState )
00032 : Open( openInfo ) { setConnectionStateInfos( connectionState ); }
00033
00034 std::string Open::getURI() const { return get()["content"]["uri"].get<std::string>(); }
00035
00036 std::map<std::string, std::string> Open::getHeaders() const
00037 {
00038     std::map<std::string, std::string> ret = get()["content"]["headers"].get<std::map<std::string,
00039     std::string>();
00040     return ret;
00041 }
00042
00043 std::string Open::getProtocol() const { return get()["content"]["protocol"].get<std::string>(); }
00044
00045 // Close
00046 Close::Close( const ix::WebSocketCloseInfo& closeInfo ) : IMessage( MessageType::Close )
00047 {
00048     nlohmann::json j;
00049     j["code"] = closeInfo.code;
00050     j["reason"] = closeInfo.reason;
00051     j["remote"] = closeInfo.remote;
00052     setContent( j );
00053 }
00054
00055 Close::Close( const ix::WebSocketCloseInfo& closeInfo, std::shared_ptr<ConnectionState>&
00056 connectionState ) : Close( closeInfo ) { setConnectionStateInfos( connectionState ); }
00057
00058 std::uint16_t Close::getCode() const { return get()["content"]["code"].get<std::uint16_t>(); }
00059 std::string Close::getReason() const { return get()["content"]["reason"].get<std::string>(); }
00060 bool Close::getRemote() const { return get()["content"]["remote"].get<bool>(); }
00061
00062 // Error
00063 Error::Error( const ix::WebSocketErrorInfo& errorInfo ) : IMessage( MessageType::Error )
00064 {
00065     nlohmann::json j;
00066     j["retries"] = errorInfo.retries;
00067     j["wait_time"] = errorInfo.wait_time;
00068     j["http_status"] = errorInfo.http_status;
00069     j["reason"] = errorInfo.reason;
00070     j["decompression_error"] = errorInfo.decompressionError;
00071     setContent( j );
00072 }
00073
00074 Error::Error( const ix::WebSocketErrorInfo& errorInfo, std::shared_ptr<ConnectionState>&
00075 connectionState ) : Error( errorInfo ) { setConnectionStateInfos( connectionState ); }
00076
00077 std::uint16_t Error::getRetries() const { return get()["content"]["retries"].get<std::uint16_t>(); }
00078 double Error::getWaitTime() const { return get()["content"]["wait_time"].get<double>(); }
00079 int Error::getHttpStatus() const { return get()["content"]["http_status"].get<int>(); }
00080 std::string Error::getReason() const { return get()["content"]["reason"].get<std::string>(); }
00081 bool Error::getDecompressionError() const { return
00082     get()["content"]["decompression_error"].get<bool>(); }

```

```

00082
00083 // Ping
00084 Ping::Ping( const ix::WebSocketMessagePtr& ping ) : IMessage( MessageType::Ping ) {}
00085
00086 Ping::Ping( const ix::WebSocketMessagePtr& ping, std::shared_ptr<ConnectionState>& connectionState ) :
    Ping( ping ) { setConnectionStateInfos( connectionState ); }
00087
00088 // Pong
00089 Pong::Pong( const ix::WebSocketMessagePtr& pong ) : IMessage( MessageType::Pong ) {}
00090
00091 Pong::Pong( const ix::WebSocketMessagePtr& pong, std::shared_ptr<ConnectionState>& connectionState ) :
    Pong( pong ) { setConnectionStateInfos( connectionState ); }
00092
00093 // Fragment
00094 Fragment::Fragment( const ix::WebSocketMessagePtr& fragment ) : IMessage( MessageType::Fragment ) {}
00095
00096 Fragment::Fragment( const ix::WebSocketMessagePtr& fragment, std::shared_ptr<ConnectionState>&
    connectionState ) : Fragment( fragment ) { setConnectionStateInfos( connectionState ); }
00097
00098 } // namespace yaodaq

```

9.47 yaodaq/Key.cpp File Reference

```

#include "yaodaq/Key.hpp"
#include <cstdint>

```

Namespaces

- namespace [yaodaq](#)

9.48 Key.cpp

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

```

00001
00005 #include "yaodaq/Key.hpp"
00006
00007 #include <cstdint>
00008
00009 namespace yaodaq
00010 {
00011 Key::Key( const Domain& domain, const Class& c_class, const Family& family ) { m_Key = (
    static_cast<std::int_least8_t>( domain ) << 24 ) + ( static_cast<std::int_least8_t>( c_class ) << 16 ) +
    static_cast<std::int_least16_t>( family ); }
00012
00013 std::int_least8_t Key::getDomain() const { return ( m_Key >> 24 ) & 0xFF; }
00014
00015 std::int_least8_t Key::getClass() const { return ( m_Key >> 16 ) & 0xFF; }
00016
00017 std::int_least16_t Key::getFamily() const { return (m_Key)&0xFFFF; }
00018
00019 std::int_least32_t Key::getKey() const { return m_Key; }
00020
00021 } // namespace yaodaq

```

9.49 yaodaq/LoggerHandler.cpp File Reference

```

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

```

Namespaces

- namespace [yaodaq](#)

9.50 LoggerHandler.cpp

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

```

00001

```

```

00005 #include "yaodag/LoggerHandler.hpp"
00006
00007 #include "spdlog/spdlog.h"
00008
00009 namespace yaodag
00010 {
00011
00012     LoggerHandler::LoggerHandler() { init(); }
00013
00014     void LoggerHandler::setName( const std::string& name )
00015     {
00016         m_Name = name;
00017         init();
00018     }
00019
00020     LoggerHandler::~LoggerHandler() {}
00021
00022     void LoggerHandler::setVerbosity( const Verbosity& verbosity )
00023     {
00024         m_Verbosity = verbosity;
00025         init();
00026     }
00027
00028     void LoggerHandler::init()
00029     {
00030         m_Logger = std::make_shared<spdlog::logger>( m_Name, std::begin( m_Sinks ), std::end( m_Sinks ) );
00031         switch( m_Verbosity )
00032         {
00033             case Verbosity::Off: m_Logger->set_level( spdlog::level::off ); break;
00034             case Verbosity::Trace: m_Logger->set_level( spdlog::level::trace ); break;
00035             case Verbosity::Debug: m_Logger->set_level( spdlog::level::debug ); break;
00036             case Verbosity::Info: m_Logger->set_level( spdlog::level::info ); break;
00037             case Verbosity::Warn: m_Logger->set_level( spdlog::level::warn ); break;
00038             case Verbosity::Error: m_Logger->set_level( spdlog::level::err ); break;
00039             case Verbosity::Critical: m_Logger->set_level( spdlog::level::critical ); break;
00040         }
00041     }
00042
00043     std::shared_ptr<spdlog::logger> LoggerHandler::logger() { return std::shared_ptr<spdlog::logger>(
        m_Logger ); }
00044
00045     void LoggerHandler::addSink( const spdlog::sink_ptr& sink )
00046     {
00047         m_Sinks.push_back( sink );
00048         init();
00049     }
00050
00051     void LoggerHandler::clearSinks()
00052     {
00053         m_Sinks.clear();
00054         init();
00055     }
00056
00057 } // namespace yaodag

```

9.51 yaodag/Looper.cpp File Reference

```

#include "yaodag/Looper.hpp"
#include <chrono>
#include <thread>

```

Namespaces

- namespace [yaodag](#)

9.52 Looper.cpp

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

```

00001
00005 #include "yaodag/Looper.hpp"
00006
00007 #include <chrono>
00008 #include <thread>
00009
00010 namespace yaodag
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

```

9.53 yaodaq/Message.cpp File Reference

```

#include "yaodaq/Message.hpp"
#include "fmt/chrono.h"
#include "magic_enum.hpp"
#include "yaodaq/Classification.hpp"
#include "yaodaq/Identifier.hpp"
#include <chrono>
#include <ctime>
#include <ixwebsocket/IXUuid.h>
#include <string>
#include <ixwebsocket/IXWebSocketVersion.h>
#include <yaodaq/YaodaqVersion.hpp>

```

Namespaces

- namespace [yaodaq](#)

9.54 Message.cpp

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

```

00001
00005 #include "yaodaq/Message.hpp"
00006
00007 #include "fmt/chrono.h"
00008 #include "magic_enum.hpp"
00009 #include "yaodaq/Classification.hpp"
00010 #include "yaodaq/Identifier.hpp"
00011
00012 #include <chrono>
00013 #include <ctime>
00014 #include <ixwebsocket/IXUuid.h>
00015 #include <string>
00016
00017 // Versions numbers
00018 #include <ixwebsocket/IXWebSocketVersion.h>
00019 #include <yaodaq/YaodaqVersion.hpp>
00020
00021 namespace yaodaq
00022 {
00023
00024 Message::Message()
00025 {
00026     m_JSON["from"];
00027     m_JSON["to"];
00028     m_JSON["type"] = magic_enum::enum_name( MessageType::Unknown );
00029     m_JSON["uuid"] = ix::uuid4();
00030     m_JSON["content"];
00031     m_JSON["timestamp"] = fmt::format( "{:%F %T %z}", fmt::gmtime( std::chrono::system_clock::to_time_t(
std::chrono::system_clock::now() ) ) );
00032     m_JSON["meta"]["compiler"] = nlohmann::json::meta()["compiler"];
00033     m_JSON["meta"]["platform"] = nlohmann::json::meta()["platform"];
00034     m_JSON["meta"]["versions"]["json"] = nlohmann::json::meta()["version"]["string"];
00035     m_JSON["meta"]["versions"]["yaodaq"] = yaodaq_version.to_string();
00036     m_JSON["meta"]["versions"]["ixwebsocket"] = std::string( IX_WEBSOCKET_VERSION );
00037 }
00038
00039 void Message::setContent( const nlohmann::json& content ) { m_JSON["content"] =
static_cast<nlohmann::json>( content ); }
00040
00041 void Message::setContent( const std::string& content )
00042 {
00043     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00044     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00045     }*/
00046 }
00047 void Message::setContent( const char* content )
00048 {
00049     /*m_JSON["content"] = nlohmann::json::parse( content, nullptr, false );
00050     if( m_JSON["content"].is_discarded() ) { m_JSON["content"] = static_cast<std::string>( content );
00051     }*/
00052 }
00053 Message::Message( const nlohmann::json& content, const MessageType& messageType ) : Message(
messageType ) { setContent( content ); }
00054
00055 Message::Message( const std::string& content, const MessageType& messageType ) : Message( messageType
) { setContent( content ); }
00056
00057 Message::Message( const char* content, const MessageType& messageType ) : Message( messageType ) {
setContent( content ); }
00058
00059 std::string Message::dump( const int& indent, const char& indent_char, const bool& ensure_ascii, const
nlohmann::detail::error_handler_t& error_handler ) const { return m_JSON.dump( indent, indent_char,
ensure_ascii, error_handler ); }
00060
00061 nlohmann::json Message::get() const { return m_JSON; }
00062
00063 std::string Message::getTypeName() const { return m_JSON["type"].get<std::string>(); }
00064
00065 MessageType Message::getTypeValue() const { return magic_enum::enum_cast<MessageType>(
m_JSON["type"].get<std::string>() ).value(); }
00066
00067 nlohmann::json Message::getContent() const { return m_JSON["content"]; }
00068
00069 std::string Message::getTimestamp() const { return m_JSON["timestamp"].get<std::string>(); }
00070
00071 std::time_t Message::getTime() const
00072 {
00073     std::tm tm;
00074     memset( &tm, 0, sizeof( tm ) );
00075     std::stringstream ss( getTimestamp() );
00076     ss > std::get_time( &tm, "%Y-%m-%d %H:%M:%S %z" );
00077     return mktime( &tm );
00078 }
00079
00080 void Message::setFrom( const Identifier& identifier )

```

```

00081 {
00082     m_JSON["from"]["name"] = identifier.getName();
00083     m_JSON["from"]["type"] = identifier.getType();
00084     m_JSON["from"]["family"] = identifier.getFamily();
00085     m_JSON["from"]["class"] = identifier.getClass();
00086     m_JSON["from"]["domain"] = identifier.getDomain();
00087 }
00088
00089 Identifier Message::getIdentifier() const
00090 {
00091     if( m_JSON["from"].is_null() ) return {};
00092     else
00093     {
00094         Identifier id( m_JSON["from"]["type"].get<std::string>(),
00095             m_JSON["from"]["name"].get<std::string>() );
00096         id.generateKey( magic_enum::enum_cast<Domain>( m_JSON["from"]["domain"].get<std::string>() ).value(),
00097             magic_enum::enum_cast<Class>( m_JSON["from"]["class"].get<std::string>() ).value(),
00098             magic_enum::enum_cast<Family>( m_JSON["from"]["family"].get<std::string>() ).value() );
00099         return id;
00100     }
00101 }
00102
00101 Message::Message( const MessageType& messageType ) : Message() { m_JSON["type"] =
00102     magic_enum::enum_name( messageType ); }
00103 } // namespace yaodaq

```

9.55 yaodaq/Version.cpp File Reference

```

#include "yaodaq/Version.hpp"
#include <magic_enum.hpp>

```

Namespaces

- namespace [yaodaq](#)

9.56 Version.cpp

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

```

00001
00005 #include "yaodaq/Version.hpp"
00006
00007 #include <magic_enum.hpp>
00008
00009 namespace yaodaq
00010 {
00011
00012 std::uint8_t Version::getMajor() { return major; }
00013
00014 std::uint8_t Version::getMinor() { return minor; }
00015
00016 std::uint8_t Version::getPatch() { return patch; }
00017
00018 std::string Version::getPreRelease() { return std::string( magic_enum::enum_name( prerelease_type ) ); }
00019
00020 std::uint8_t Version::getPreReleaseNumber() { return prerelease_number; }
00021
00022 const static Version yaodaq_version;
00023
00024 } // namespace yaodaq

```

9.57 yaodaq/WebsocketClient.cpp File Reference

```

#include "yaodaq/WebsocketClient.hpp"
#include "yaodaq/Exception.hpp"
#include "yaodaq/IXWebsocketMessage.hpp"
#include "yaodaq/StatusCode.hpp"
#include <chrono>
#include <ixwebsocket/IXNetSystem.h>

```

```
#include <magic_enum.hpp>
#include <spdlog/sinks/stdout_color_sinks.h>
#include <thread>
```

Namespaces

- namespace `yaodaq`

9.58 WebsocketClient.cpp

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

```
00001
00005 #include "yaodaq/WebsocketClient.hpp"
00006
00007 #include "yaodaq/Exception.hpp"
00008 #include "yaodaq/IXWebsocketMessage.hpp"
00009 #include "yaodaq/StatusCode.hpp"
00010
00011 #include <chrono>
00012 #include <ixwebsocket/IXNetSystem.h>
00013 #include <magic_enum.hpp>
00014 #include <spdlog/sinks/stdout_color_sinks.h>
00015 #include <thread>
00016
00017 namespace yaodaq
00018 {
00019
00020 WebsocketClient::WebsocketClient( const std::string& name, const std::string& type ) : m_Identifier(
    type, name )
00021 {
00022     ix::initNetSystem();
00023
00024     m_Identifier.generateKey( Domain::Application, Class::Client, Family::WebSocketClient );
00025     m_Logger.setName( m_Identifier.get() );
00026     m_Logger.addSink( std::make_shared<spdlog::sinks::stdout_color_sink_mt>() );
00027
00028     ix::WebSocketHttpHeaders header{ { "id", m_Identifier.get() } };
00029     setExtraHeaders( header );
00030
00031     setOnMessageCallback(
00032         [this]( const ix::WebSocketMessagePtr& msg )
00033         {
00034             if( msg->type == ix::WebSocketMessageType::Message ) { logger()->error( "{}", msg->str ); }
00035             else if( msg->type == ix::WebSocketMessageType::Error )
00036             {
00037                 std::cout << "Connection error: " << msg->errorInfo.reason << std::endl;
00038             }
00039             else if( msg->type == ix::WebSocketMessageType::Close )
00040             {
00041                 disableAutomaticReconnection();
00042                 if( msg->closeInfo.code == magic_enum::enum_integer(
                    StatusCode::CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED ) )
00043                 {
00044                     logger()->critical( fmt::format( fg( fmt::color::red ) | fmt::emphasis::bold,
                        msg->closeInfo.reason ) );
00045                     close();
00046                     // throw Exception( StatusCode::CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED,
                        msg->closeInfo.reason );
00047                 }
00048             }
00049         }
00050     );
00051 };
00052 }
00053
00054 void WebsocketClient::onMessage( Message& message ) {}
00055
00056 void WebsocketClient::onOpen( Open& open ) {}
00057
00058 void WebsocketClient::onClose( Close& close ) {}
00059
00060 void WebsocketClient::onError( Error& error ) {}
00061
00062 void WebsocketClient::onPing( Ping& ping ) {}
00063
00064 void WebsocketClient::onPong( Pong& pong ) {}
00065
00066 void WebsocketClient::onFragment( Fragment& fragment ) {}
00067
00068 WebsocketClient::~WebsocketClient()
```



```

00069 {
00070     stop();
00071     ix::uninitNetSystem();
00072 }
00073
00074 void WebsocketClient::start()
00075 {
00076     if( getReadyState() == ix::ReadyState::Closed || getReadyState() == ix::ReadyState::Closing )
00077     {
00078         logger()->trace( "Client started. Connected to {}", getUrl() );
00079         ix::WebSocket::start();
00080     }
00081 }
00082
00083 void WebsocketClient::stop()
00084 {
00085     if( getReadyState() == ix::ReadyState::Open || getReadyState() == ix::ReadyState::Connecting )
00086     {
00087         logger()->trace( "Client stopped" );
00088         ix::WebSocket::stop();
00089         while( getReadyState() != ix::ReadyState::Closed ) { std::this_thread::sleep_for(
std::chrono::microseconds( 1 ) ); }
00090     }
00091 }
00092
00093 void WebsocketClient::loop()
00094 {
00095     WebsocketClient::start();
00096     m_Looper.suppressInstance();
00097     onRaisingSignal();
00098 }
00099
00100 void WebsocketClient::onRaisingSignal()
00101 {
00102     Signal signal = m_Looper.loop();
00103     if( m_Looper.getInstance() == 0 )
00104     {
00105         int value = magic_enum::enum_integer( signal );
00106         if( value >= magic_enum::enum_integer( yaodaq::Severity::Critical ) ) { logger()->critical(
"Signal SIG{} raised !", magic_enum::enum_name( signal ) ); }
00107         else if( value >= magic_enum::enum_integer( yaodaq::Severity::Error ) )
00108         {
00109             logger()->error( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00110         }
00111         else if( value >= magic_enum::enum_integer( yaodaq::Severity::Warning ) )
00112         {
00113             fmt::print( "\n" );
00114             logger()->warn( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00115         }
00116         else if( value >= magic_enum::enum_integer( yaodaq::Severity::Info ) )
00117         {
00118             fmt::print( "\n" );
00119             logger()->info( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00120         }
00121         else
00122         {
00123             fmt::print( "\n" );
00124             logger()->trace( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00125         }
00126         if( magic_enum::enum_integer( signal ) >= magic_enum::enum_integer( Severity::Critical ) )
std::exit( magic_enum::enum_integer( signal ) );
00127     }
00128 }
00129
00130 } // namespace yaodaq

```

9.59 yaodaq/WebsocketServer.cpp File Reference

```

#include "yaodaq/WebsocketServer.hpp"
#include "yaodaq/Classification.hpp"
#include "yaodaq/ConnectionState.hpp"
#include "yaodaq/Exception.hpp"
#include "yaodaq/IXWebsocketMessage.hpp"
#include "yaodaq/Identifier.hpp"
#include "yaodaq/StatusCode.hpp"
#include <chrono>
#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](#)

9.60 WebsocketServer.cpp

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

```
00001
00005 #include "yaodaq/WebsocketServer.hpp"
00006
00007 #include "yaodaq/Classification.hpp"
00008 #include "yaodaq/ConnectionState.hpp"
00009 #include "yaodaq/Exception.hpp"
00010 #include "yaodaq/IXWebsocketMessage.hpp"
00011 #include "yaodaq/Identifier.hpp"
00012 #include "yaodaq/StatusCode.hpp"
00013
00014 #include <chrono>
00015 #include <iostream>
00016 #include <ixwebsocket/IXNetSystem.h>
00017 #include <magic_enum.hpp>
00018 #include <spdlog/sinks/stdout_color_sinks.h>
00019 #include <spdlog/spdlog.h>
00020 #include <string>
00021 #include <thread>
00022 #include <utility>
00023
00024 namespace yaodaq
00025 {
00026
00027 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 ) :
00028     ix::WebSocketServer( port, host, backlog, maxConnections, handshakeTimeoutSecs, addressFamily ),
    m_Identifier( type, name )
00029 {
00030     ix::initNetSystem();
00031
00032     m_Identifier.generateKey( Domain::Application, Class::Server, Family::WebSocketServer );
00033     m_Logger.setName( m_Identifier.get() );
00034     m_Logger.addSink( std::make_shared<spdlog::sinks::stdout_color_sink_mt>() );
00035
00036     setConnectionFactory( []() { return std::make_shared<ConnectionState>(); } );
00037
00038     setOnClientMessageCallback(
00039         [this]( std::shared_ptr<ix::ConnectionState> connectionState, ix::WebSocket& websocket, const
    ix::WebSocketMessagePtr& msg )
00040         {
00041             // The ConnectionState object contains information about the connection
00042             std::shared_ptr<ConnectionState> connection = std::static_pointer_cast<ConnectionState>(
    connectionState );
00043             if( msg->type == ix::WebSocketMessageType::Message ) {}
00044             else if( msg->type == ix::WebSocketMessageType::Open )
00045             {
00046                 // Check if a client with the same name is already connected;
00047                 connection->computeId( getHost() + ":" + std::to_string( getPort() ), Identifier::parse(
    msg->openInfo.headers["id"] ) );
00048                 if( connection->isTerminated() )
00049                 {
00050                     logger()->error( fmt::format( fg( fmt::color::red ) | fmt::emphasis::bold, "One client with
    the name \"{}\" is already connected !", Identifier::parse( msg->openInfo.headers["id"] ).getName() )
    );
00051                     websocket.stop( magic_enum::enum_integer(
    StatusCode::CLIENT_WITH_SAME_NAME_ALREADY_CONNECTED ),
00052                         fmt::format( "One client with the name \"{}\" is already connected to
    ws{}://{}:{}", Identifier::parse( msg->openInfo.headers["id"] ).getName(), "", getHost(), getPort()
    ) );
00053                     std::this_thread::sleep_for( std::chrono::milliseconds( 10 ) );
00054                     return;
00055                 }
00056                 addClient( Identifier::parse( msg->openInfo.headers["id"] ), websocket );
00057                 Open open( msg->openInfo, connection );
00058                 sendToLoggers( open, websocket );
```

```

00059         onOpen( open );
00060     }
00061     else if( msg->type == ix::WebSocketMessageType::Close )
00062     {
00063         Close close( msg->closeInfo, connection );
00064         sendToLoggers( close, websocket );
00065         onClose( close );
00066         removeClient( websocket );
00067     }
00068     else if( msg->type == ix::WebSocketMessageType::Error )
00069     {
00070         Error error( msg->errorInfo, connection );
00071         sendToLoggers( error, websocket );
00072         onError( error );
00073     }
00074     else if( msg->type == ix::WebSocketMessageType::Ping )
00075     {
00076         Ping ping( msg, connection );
00077         sendToLoggers( ping, websocket );
00078         onPing( ping );
00079     }
00080     else if( msg->type == ix::WebSocketMessageType::Pong )
00081     {
00082         Pong pong( msg, connection );
00083         sendToLoggers( pong, websocket );
00084         onPong( pong );
00085     }
00086     else if( msg->type == ix::WebSocketMessageType::Fragment )
00087     {
00088         Fragment fragment( msg, connection );
00089         sendToLoggers( fragment, websocket );
00090         onFragment( fragment );
00091     }
00092 } );
00093 }
00094
00095 void WebSocketServer::addClient( const Identifier& identifier, ix::WebSocket& websocket )
00096 {
00097     std::lock_guard<std::mutex> guard( m_Mutex );
00098     m_Clients.try_emplace( identifier, websocket );
00099 }
00100
00101 void WebSocketServer::removeClient( ix::WebSocket& websocket )
00102 {
00103     std::lock_guard<std::mutex> guard( m_Mutex );
00104     for( std::map<Identifier, ix::WebSocket&>::iterator it = m_Clients.begin(); it != m_Clients.end();
00105         ++it )
00106     {
00107         if( &it->second == &websocket )
00108         {
00109             m_Clients.erase( it->first );
00110             break;
00111         }
00112     }
00113 }
00114
00114 void WebSocketServer::sendToLoggers( Message& message, ix::WebSocket& websocket )
00115 {
00116     for( std::map<Identifier, ix::WebSocket&>::iterator it = m_Clients.begin(); it != m_Clients.end();
00117         ++it )
00118     {
00119         if( magic_enum::enum_cast<Family>( it->first.getFamily() ).value() == Family::Logger && &websocket
00120             != &it->second ) it->second.send( message.dump() );
00121     }
00122 }
00122 void WebSocketServer::sendToLoggers( Message& message )
00123 {
00124     for( std::map<Identifier, ix::WebSocket&>::iterator it = m_Clients.begin(); it != m_Clients.end();
00125         ++it )
00126     {
00127         if( magic_enum::enum_cast<Family>( it->first.getFamily() ).value() == Family::Logger )
00128             it->second.send( message.dump() );
00129     }
00130 }
00130 void WebSocketServer::sendToLoggers( const Message& message, ix::WebSocket& websocket )
00131 {
00132     for( std::map<Identifier, ix::WebSocket&>::iterator it = m_Clients.begin(); it != m_Clients.end();
00133         ++it )
00134     {
00135         if( magic_enum::enum_cast<Family>( it->first.getFamily() ).value() == Family::Logger && &websocket
00136             != &it->second ) it->second.send( message.dump() );
00137     }
00138 }
00138 void WebSocketServer::sendToLoggers( const Message& message )

```

```

00139 {
00140     for( std::map<Identifier, ix::WebSocket>::iterator it = m_Clients.begin(); it != m_Clients.end();
++it )
00141     {
00142         if( magic_enum::enum_cast<Family>( it->first.getFamily() ).value() == Family::Logger )
            it->second.send( message.dump() );
00143     }
00144 }
00145
00146 void WebSocketServer::onMessage( Message& message ) {}
00147
00148 void WebSocketServer::onOpen( Open& open ) {}
00149
00150 void WebSocketServer::onClose( Close& close ) {}
00151
00152 void WebSocketServer::onError( Error& error ) {}
00153
00154 void WebSocketServer::onPing( Ping& ping ) {}
00155
00156 void WebSocketServer::onPong( Pong& pong ) {}
00157
00158 void WebSocketServer::onFragment( Fragment& fragment ) {}
00159
00160 void WebSocketServer::listen()
00161 {
00162     if( !m_isListening )
00163     {
00164         std::pair<bool, std::string> ret = ix::WebSocketServer::listen();
00165         if( ret.first )
00166         {
00167             m_isListening = ret.first;
00168             logger()->info( "Server listening on {0}:{1}", getHost(), getPort() );
00169         }
00170         else
00171             throw Exception( StatusCode::LISTEN_ERROR, ret.second );
00172     }
00173 }
00174
00175 void WebSocketServer::start()
00176 {
00177     if( !m_isStarted )
00178     {
00179         m_isStarted = true;
00180         logger()->trace( "Server started" );
00181         ix::WebSocketServer::start();
00182     }
00183 }
00184
00185 void WebSocketServer::stop( bool useless )
00186 {
00187     if( !m_isStopped )
00188     {
00189         m_isStopped = true;
00190         useless = !useless;
00191         logger()->trace( "Server stopped" );
00192         ix::WebSocketServer::stop();
00193     }
00194 }
00195
00196 void WebSocketServer::setVerbosity( const yaodag::LoggerHandler::Verbosity& verbosity ) {
    m_Logger.setVerbosity( verbosity ); }
00197
00198 WebSocketServer::~WebSocketServer()
00199 {
00200     stop();
00201     ix::uninitNetSystem();
00202 }
00203
00204 void WebSocketServer::loop()
00205 {
00206     listen();
00207     start();
00208     m_Looper.supressInstance();
00209     onRaisingSignal();
00210 }
00211
00212 void WebSocketServer::onRaisingSignal()
00213 {
00214     Signal signal = m_Looper.loop();
00215     if( m_Looper.getInstance() == 0 )
00216     {
00217         int value = magic_enum::enum_integer( signal );
00218         if( value >= magic_enum::enum_integer( yaodag::Severity::Critical ) ) { logger()->critical(
"Signal SIG{} raised !", magic_enum::enum_name( signal ) ); }
00219         else if( value >= magic_enum::enum_integer( yaodag::Severity::Error ) )
00220         {
00221             logger()->error( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );

```

```
00222     }
00223     else if( value >= magic_enum::enum_integer( yaodag::Severity::Warning ) )
00224     {
00225         fmt::print( "\n" );
00226         logger()->warn( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00227     }
00228     else if( value >= magic_enum::enum_integer( yaodag::Severity::Info ) )
00229     {
00230         fmt::print( "\n" );
00231         logger()->info( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00232     }
00233     else
00234     {
00235         fmt::print( "\n" );
00236         logger()->trace( "Signal SIG{} raised !", magic_enum::enum_name( signal ) );
00237     }
00238     if( magic_enum::enum_integer( signal ) >= magic_enum::enum_integer( Severity::Critical ) )
00239         std::exit( magic_enum::enum_integer( signal ) );
00240 }
00241
00242 } // namespace yaodag
```

