



YAODAQ

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

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1 License	1
2 Third-party licenses	3
2.1 LICENSE ISSUES	4
2.1.1 OpenSSL License	4
2.1.2 Original SSLeay License	6
3 Namespace Index	11
3.1 Namespace List	11
4 Hierarchical Index	13
4.1 Class Hierarchy	13
5 Data Structure Index	15
5.1 Data Structures	15
6 File Index	17
6.1 File List	17
7 Namespace Documentation	19
7.1 spdlog Namespace Reference	19
7.1.1 Detailed Description	19
7.1.2 Typedef Documentation	19
7.1.2.1 sink_ptr	19
7.2 yaodaq Namespace Reference	19
7.2.1 Detailed Description	20
7.2.2 Enumeration Type Documentation	20
7.2.2.1 Class	20
7.2.2.2 Domain	21
7.2.2.3 Family	21
7.2.2.4 MessageType	21
7.2.2.5 Severity	22
7.2.2.6 Signal	22
7.2.2.7 StatusCode	23
7.2.3 Function Documentation	23
7.2.3.1 operator<<()	23
8 Data Structure Documentation	25
8.1 yaodaq::Close Class Reference	25
8.1.1 Detailed Description	25
8.1.2 Constructor & Destructor Documentation	26
8.1.2.1 Close() [1/2]	26
8.1.2.2 Close() [2/2]	26
8.1.3 Member Function Documentation	26
8.1.3.1 dump()	26

8.1.3.2	get()	26
8.1.3.3	getCode()	26
8.1.3.4	getContent()	26
8.1.3.5	getIdentifier()	27
8.1.3.6	getReason()	27
8.1.3.7	getRemote()	27
8.1.3.8	getTime()	27
8.1.3.9	getTimestamp()	27
8.1.3.10	getTypeName()	27
8.1.3.11	getTypeValue()	27
8.1.3.12	setConnectionStateInfos()	28
8.1.3.13	setContent() [1/3]	28
8.1.3.14	setContent() [2/3]	28
8.1.3.15	setContent() [3/3]	28
8.1.3.16	setFrom()	28
8.2	yaodaq::ConnectionState Class Reference	28
8.2.1	Detailed Description	29
8.2.2	Constructor & Destructor Documentation	29
8.2.2.1	ConnectionState()	29
8.2.2.2	~ConnectionState()	29
8.2.3	Member Function Documentation	29
8.2.3.1	computeId()	29
8.3	yaodaq::Error Class Reference	30
8.3.1	Detailed Description	30
8.3.2	Constructor & Destructor Documentation	30
8.3.2.1	Error() [1/2]	31
8.3.2.2	Error() [2/2]	31
8.3.3	Member Function Documentation	31
8.3.3.1	dump()	31
8.3.3.2	get()	31
8.3.3.3	getContent()	31
8.3.3.4	getDecompressionError()	31
8.3.3.5	getHttpStatus()	32
8.3.3.6	getIdentifier()	32
8.3.3.7	getReason()	32
8.3.3.8	getRetries()	32
8.3.3.9	getTime()	32
8.3.3.10	getTimestamp()	32
8.3.3.11	getTypeName()	32
8.3.3.12	getTypeValue()	33
8.3.3.13	getWaitTime()	33
8.3.3.14	setConnectionStateInfos()	33

8.3.3.15 setContent() [1/3]	33
8.3.3.16 setContent() [2/3]	33
8.3.3.17 setContent() [3/3]	33
8.3.3.18 setFrom()	33
8.4 yaodaq::Exception Class Reference	34
8.4.1 Detailed Description	34
8.4.2 Constructor & Destructor Documentation	34
8.4.2.1 Exception() [1/2]	34
8.4.2.2 Exception() [2/2]	34
8.4.2.3 ~Exception()	35
8.4.3 Member Function Documentation	35
8.4.3.1 code()	35
8.4.3.2 description()	35
8.4.3.3 setFormat()	35
8.4.3.4 setStyle()	35
8.4.3.5 what()	35
8.5 yaodaq::Fragment Class Reference	35
8.5.1 Detailed Description	36
8.5.2 Constructor & Destructor Documentation	36
8.5.2.1 Fragment() [1/2]	36
8.5.2.2 Fragment() [2/2]	36
8.5.3 Member Function Documentation	36
8.5.3.1 dump()	36
8.5.3.2 get()	37
8.5.3.3 getContent()	37
8.5.3.4 getIdentifier()	37
8.5.3.5 getTime()	37
8.5.3.6 getTimestamp()	37
8.5.3.7 getTypeName()	37
8.5.3.8 getTypeValue()	37
8.5.3.9 setConnectionStateInfos()	38
8.5.3.10 setContent() [1/3]	38
8.5.3.11 setContent() [2/3]	38
8.5.3.12 setContent() [3/3]	38
8.5.3.13 setFrom()	38
8.6 yaodaq::Identifier Class Reference	39
8.6.1 Detailed Description	39
8.6.2 Constructor & Destructor Documentation	39
8.6.2.1 Identifier() [1/2]	39
8.6.2.2 Identifier() [2/2]	39
8.6.3 Member Function Documentation	39
8.6.3.1 empty()	39

8.6.3.2 generateKey()	40
8.6.3.3 get()	40
8.6.3.4 getClass()	40
8.6.3.5 getDomain()	40
8.6.3.6 getFamily()	40
8.6.3.7 getKey()	40
8.6.3.8 getName()	40
8.6.3.9 getType()	40
8.6.3.10 operator<()	41
8.6.3.11 parse()	41
8.7 yaodaq::Interrupt Class Reference	41
8.7.1 Detailed Description	41
8.7.2 Constructor & Destructor Documentation	41
8.7.2.1 Interrupt()	42
8.7.2.2 ~Interrupt()	42
8.7.3 Member Function Documentation	42
8.7.3.1 getSignal()	42
8.7.3.2 init()	42
8.7.3.3 restore()	42
8.8 yaodaq::IXMessage Class Reference	42
8.8.1 Detailed Description	43
8.8.2 Constructor & Destructor Documentation	43
8.8.2.1 IXMessage()	43
8.8.3 Member Function Documentation	43
8.8.3.1 dump()	43
8.8.3.2 get()	44
8.8.3.3 getContent()	44
8.8.3.4 getIdentifier()	44
8.8.3.5 getTime()	44
8.8.3.6 getTimestamp()	44
8.8.3.7 getTypeName()	44
8.8.3.8 getTypeValue()	44
8.8.3.9 setConnectionStateInfos()	45
8.8.3.10 setContent() [1/3]	45
8.8.3.11 setContent() [2/3]	45
8.8.3.12 setContent() [3/3]	45
8.8.3.13 setFrom()	45
8.9 yaodaq::Key Class Reference	45
8.9.1 Detailed Description	46
8.9.2 Constructor & Destructor Documentation	46
8.9.2.1 Key() [1/2]	46
8.9.2.2 Key() [2/2]	46

8.9.3 Member Function Documentation	46
8.9.3.1 getClass()	46
8.9.3.2 getDomain()	46
8.9.3.3 getFamily()	46
8.9.3.4 getKey()	47
8.10 yaodag::LoggerHandler Class Reference	47
8.10.1 Detailed Description	47
8.10.2 Member Enumeration Documentation	47
8.10.2.1 Verbosity	47
8.10.3 Constructor & Destructor Documentation	48
8.10.3.1 LoggerHandler()	48
8.10.3.2 ~LoggerHandler()	48
8.10.4 Member Function Documentation	48
8.10.4.1 addSink()	48
8.10.4.2 clearSinks()	48
8.10.4.3 logger()	48
8.10.4.4 setName()	48
8.10.4.5 setVerbosity()	49
8.11 yaodag::Looper Class Reference	49
8.11.1 Detailed Description	49
8.11.2 Constructor & Destructor Documentation	49
8.11.2.1 Looper()	49
8.11.2.2 ~Looper()	49
8.11.3 Member Function Documentation	50
8.11.3.1 getInstance()	50
8.11.3.2 getSignal()	50
8.11.3.3 loop()	50
8.11.3.4 supressInstance()	50
8.12 yaodag::Message Class Reference	50
8.12.1 Detailed Description	51
8.12.2 Constructor & Destructor Documentation	51
8.12.2.1 Message() [1/5]	51
8.12.2.2 Message() [2/5]	51
8.12.2.3 Message() [3/5]	52
8.12.2.4 Message() [4/5]	52
8.12.2.5 Message() [5/5]	52
8.12.3 Member Function Documentation	52
8.12.3.1 dump()	52
8.12.3.2 get()	52
8.12.3.3 getContent()	52
8.12.3.4 getIdentifier()	52
8.12.3.5 getTime()	53

8.12.3.6	getTimestamp()	53
8.12.3.7	getTypeName()	53
8.12.3.8	getTypeValue()	53
8.12.3.9	setContent() [1/3]	53
8.12.3.10	setContent() [2/3]	53
8.12.3.11	setContent() [3/3]	54
8.12.3.12	setFrom()	54
8.13	yaodaq::Open Class Reference	54
8.13.1	Detailed Description	55
8.13.2	Constructor & Destructor Documentation	55
8.13.2.1	Open() [1/2]	55
8.13.2.2	Open() [2/2]	55
8.13.3	Member Function Documentation	55
8.13.3.1	dump()	55
8.13.3.2	get()	55
8.13.3.3	getContent()	56
8.13.3.4	getHeaders()	56
8.13.3.5	getIdentifier()	56
8.13.3.6	getProtocol()	56
8.13.3.7	getTime()	56
8.13.3.8	getTimestamp()	56
8.13.3.9	getTypeName()	56
8.13.3.10	getTypeValue()	57
8.13.3.11	getURI()	57
8.13.3.12	setConnectionStateInfos()	57
8.13.3.13	setContent() [1/3]	57
8.13.3.14	setContent() [2/3]	57
8.13.3.15	setContent() [3/3]	57
8.13.3.16	setFrom()	57
8.14	yaodaq::Ping Class Reference	58
8.14.1	Detailed Description	58
8.14.2	Constructor & Destructor Documentation	58
8.14.2.1	Ping() [1/2]	59
8.14.2.2	Ping() [2/2]	59
8.14.3	Member Function Documentation	59
8.14.3.1	dump()	59
8.14.3.2	get()	59
8.14.3.3	getContent()	59
8.14.3.4	getIdentifier()	59
8.14.3.5	getTime()	60
8.14.3.6	getTimestamp()	60
8.14.3.7	getTypeName()	60

8.14.3.8	getTypeValue()	60
8.14.3.9	setConnectionStateInfos()	60
8.14.3.10	setContent() [1/3]	60
8.14.3.11	setContent() [2/3]	60
8.14.3.12	setContent() [3/3]	61
8.14.3.13	setFrom()	61
8.15	yaodag::Pong Class Reference	61
8.15.1	Detailed Description	62
8.15.2	Constructor & Destructor Documentation	62
8.15.2.1	Pong() [1/2]	62
8.15.2.2	Pong() [2/2]	62
8.15.3	Member Function Documentation	62
8.15.3.1	dump()	62
8.15.3.2	get()	62
8.15.3.3	getContent()	62
8.15.3.4	getIdentifier()	63
8.15.3.5	getTime()	63
8.15.3.6	getTimestamp()	63
8.15.3.7	getTypeName()	63
8.15.3.8	getTypeValue()	63
8.15.3.9	setConnectionStateInfos()	63
8.15.3.10	setContent() [1/3]	64
8.15.3.11	setContent() [2/3]	64
8.15.3.12	setContent() [3/3]	64
8.15.3.13	setFrom()	64
8.16	yaodag::Version Class Reference	64
8.16.1	Detailed Description	65
8.16.2	Constructor & Destructor Documentation	65
8.16.2.1	Version() [1/3]	65
8.16.2.2	Version() [2/3]	65
8.16.2.3	Version() [3/3]	65
8.16.3	Member Function Documentation	65
8.16.3.1	getMajor()	65
8.16.3.2	getMinor()	65
8.16.3.3	getPatch()	66
8.16.3.4	getPreRelease()	66
8.16.3.5	getPreReleaseNumber()	66
8.17	yaodag::WebsocketClient Class Reference	66
8.17.1	Detailed Description	66
8.17.2	Constructor & Destructor Documentation	66
8.17.2.1	WebsocketClient()	67
8.17.2.2	~WebsocketClient()	67

8.17.3 Member Function Documentation	67
8.17.3.1 logger()	67
8.17.3.2 loop()	67
8.17.3.3 onClose()	68
8.17.3.4 onError()	68
8.17.3.5 onFragment()	68
8.17.3.6 onMessage()	68
8.17.3.7 onOpen()	68
8.17.3.8 onPing()	68
8.17.3.9 onPong()	68
8.17.3.10 start()	68
8.17.3.11 stop()	69
8.18 yaodag::WebsocketServer Class Reference	69
8.18.1 Detailed Description	70
8.18.2 Constructor & Destructor Documentation	70
8.18.2.1 WebsocketServer()	70
8.18.2.2 ~WebsocketServer()	71
8.18.3 Member Function Documentation	71
8.18.3.1 listen()	71
8.18.3.2 logger()	71
8.18.3.3 loop()	71
8.18.3.4 onClose()	72
8.18.3.5 onError()	72
8.18.3.6 onFragment()	72
8.18.3.7 onMessage()	72
8.18.3.8 onOpen()	72
8.18.3.9 onPing()	72
8.18.3.10 onPong()	72
8.18.3.11 sendToLoggers() [1/4]	72
8.18.3.12 sendToLoggers() [2/4]	73
8.18.3.13 sendToLoggers() [3/4]	73
8.18.3.14 sendToLoggers() [4/4]	73
8.18.3.15 setVerbosity()	73
8.18.3.16 start()	73
8.18.3.17 stop()	74
9 File Documentation	75
9.1 docs/License.md File Reference	75
9.2 docs/Third-party licenses.md File Reference	75
9.3 yaodag/Classification.hpp File Reference	75
9.4 Classification.hpp	75
9.5 yaodag/ConnectionState.hpp File Reference	76

9.6 ConnectionState.hpp	76
9.7 yaodaq/Exception.hpp File Reference	77
9.8 Exception.hpp	77
9.9 yaodaq/Identifier.hpp File Reference	78
9.10 Identifier.hpp	78
9.11 yaodaq/Interrupt.hpp File Reference	78
9.12 Interrupt.hpp	79
9.13 yaodaq/IXWebsocketMessage.hpp File Reference	79
9.14 IXWebsocketMessage.hpp	80
9.15 yaodaq/Key.hpp File Reference	81
9.16 Key.hpp	81
9.17 yaodaq/LoggerHandler.hpp File Reference	81
9.18 LoggerHandler.hpp	82
9.19 yaodaq/Looper.hpp File Reference	82
9.20 Looper.hpp	82
9.21 yaodaq/Message.hpp File Reference	83
9.22 Message.hpp	83
9.23 yaodaq/MessageType.hpp File Reference	84
9.24 MessageType.hpp	84
9.25 yaodaq/Severity.hpp File Reference	85
9.26 Severity.hpp	85
9.27 yaodaq/Signal.hpp File Reference	85
9.28 Signal.hpp	85
9.29 yaodaq/StatusCode.hpp File Reference	86
9.30 StatusCode.hpp	86
9.31 yaodaq/Version.hpp File Reference	86
9.32 Version.hpp	87
9.33 yaodaq/WebsocketClient.hpp File Reference	87
9.34 WebsocketClient.hpp	87
9.35 yaodaq/WebsocketServer.hpp File Reference	88
9.36 WebsocketServer.hpp	89
9.37 yaodaq/ConnectionState.cpp File Reference	90
9.38 ConnectionState.cpp	90
9.39 yaodaq/Exception.cpp File Reference	90
9.40 Exception.cpp	90
9.41 yaodaq/Identifier.cpp File Reference	91
9.42 Identifier.cpp	91
9.43 yaodaq/Interrupt.cpp File Reference	92
9.44 Interrupt.cpp	92
9.45 yaodaq/IXWebsocketMessage.cpp File Reference	93
9.46 IXWebsocketMessage.cpp	94
9.47 yaodaq/Key.cpp File Reference	95

9.48 Key.cpp	95
9.49 yaodaq/LoggerHandler.cpp File Reference	95
9.50 LoggerHandler.cpp	95
9.51 yaodaq/Looper.cpp File Reference	96
9.52 Looper.cpp	96
9.53 yaodaq/Message.cpp File Reference	97
9.54 Message.cpp	97
9.55 yaodaq/Version.cpp File Reference	99
9.56 Version.cpp	99
9.57 yaodaq/WebsocketClient.cpp File Reference	99
9.58 WebsocketClient.cpp	100
9.59 yaodaq/WebsocketServer.cpp File Reference	101
9.60 WebsocketServer.cpp	102

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

yaodag/Classification.hpp	75
yaodag/ConnectionState.hpp	76
yaodag/Exception.hpp	77
yaodag/Identifier.hpp	78
yaodag/Interrupt.hpp	78
yaodag/IXWebsocketMessage.hpp	79
yaodag/Key.hpp	81
yaodag/LoggerHandler.hpp	81
yaodag/Looper.hpp	82
yaodag/Message.hpp	83
yaodag/MessageType.hpp	84
yaodag/Severity.hpp	85
yaodag/Signal.hpp	85
yaodag/StatusCode.hpp	86
yaodag/Version.hpp	86
yaodag/WebsocketClient.hpp	87
yaodag/WebsocketServer.hpp	88
yaodag/ConnectionState.cpp	90
yaodag/Exception.cpp	90
yaodag/Identifier.cpp	91
yaodag/Interrupt.cpp	92
yaodag/IXWebsocketMessage.cpp	93
yaodag/Key.cpp	95
yaodag/LoggerHandler.cpp	95
yaodag/Looper.cpp	96
yaodag/Message.cpp	97
yaodag/Version.cpp	99
yaodag/WebsocketClient.cpp	99
yaodag/WebsocketServer.cpp	101

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 yaodaq::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 yaodag::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 & yaodag::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 ); }
```

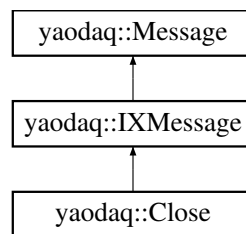

Chapter 8

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]

```
yaodaq::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]

```
yaodaq::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 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 ); }
```

8.1.3.2 get()

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

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

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

8.1.3.3 getCode()

```
std::uint16_t yaodaq::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 yaodaq::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 }
```

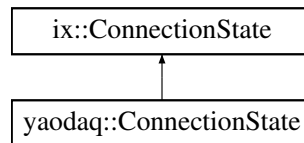
The documentation for this class was generated from the following files:

- [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 }
```

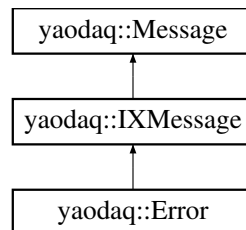
The documentation for this class was generated from the following files:

- 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                                     : IMessage( 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;
00098     }
00099 }
```

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 }

```

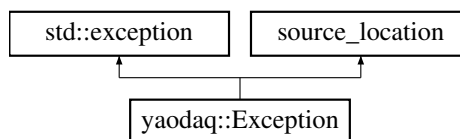
The documentation for this class was generated from the following files:

- [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(); }
```

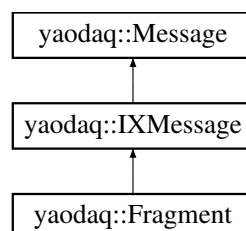
The documentation for this class was generated from the following files:

- [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 }
```

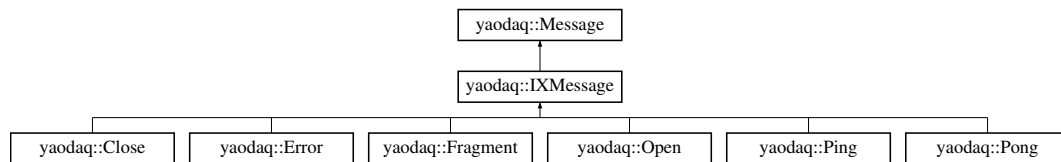
The documentation for this class was generated from the following files:

- [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 }
```

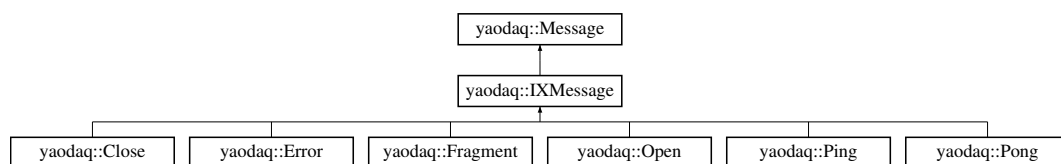
The documentation for this class was generated from the following files:

- [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]

yaodag::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"]["yaodag"] = yaodag_version.to_string();
00036     m_JSON["meta"]["versions"]["ixwebsocket"] = std::string( IX_WEBSOCKET_VERSION );
00037 }
```

8.12.2.2 Message() [2/5]

yaodag::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 }
```

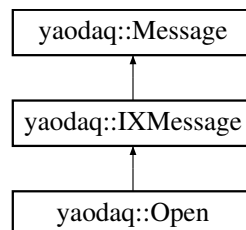
The documentation for this class was generated from the following files:

- [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]

```
yaodag::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]

```
yaodag::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 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 ); }
```

8.13.3.2 get()

```
nlohmann::json yaodag::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 }

```

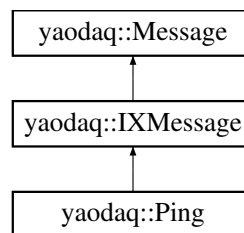
The documentation for this class was generated from the following files:

- [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 yaodag::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 yaodag::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 yaodag::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](#) 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(); }
```

8.14.3.9 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 }
```

8.14.3.10 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 }
```

8.14.3.11 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 ); }
```


8.14.3.12 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 }
```

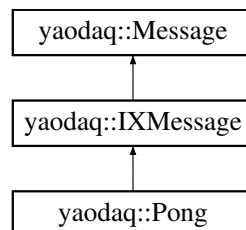
The documentation for this class was generated from the following files:

- [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 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     }*/
```

8.15.3.11 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 ); }
```

8.15.3.12 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     }*/
```

8.15.3.13 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();
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 }
```

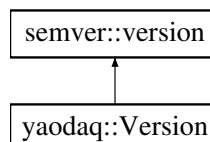
The documentation for this class was generated from the following files:

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

8.16 yaodag::Version Class Reference

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

Inheritance diagram for yaodag::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; }
```

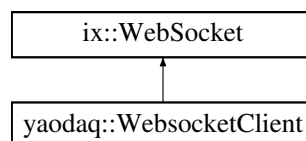
The documentation for this class was generated from the following files:

- [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 }

```

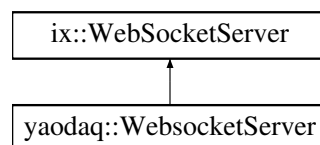
The documentation for this class was generated from the following files:

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

```

9.9 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 [yaodaq](#)

9.12 Interrupt.hpp

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

```

00001 #ifndef YAODAQ_HANDLER_HPP
00002 #define YAODAQ_HANDLER_HPP
00003
00008 #include "yaodaq/Signal.hpp"
00009
00010 #include <atomic>
00011 #include <csignal>
00012 #include <mutex>
00013
00014 namespace yaodaq
00015 {
00016
00017 enum class Signal;
00018
00019 class Interrupt
00020 {
00021 public:
00022     Interrupt();
00023     void init();
00024     void restore();
00025     Signal getSignal();
00026     ~Interrupt();
00027
00028 private:
00029     volatile static std::atomic<Signal> m_Signal;
00030     void setSignal( const Signal& signal );
00031     std::mutex m_mutex;
00032 };
00033
00034 } // namespace yaodaq
00035
00036 #endif // YAODAQ_HANDLER_HPP

```

9.13 yaodaq/IXWebsocketMessage.hpp File Reference

```

#include "yaodaq/ConnectionState.hpp"
#include "yaodaq/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 [yaodaq::IXMessage](#)
- class [yaodaq::Open](#)
- class [yaodaq::Close](#)
- class [yaodaq::Error](#)
- class [yaodaq::Ping](#)
- class [yaodaq::Pong](#)
- class [yaodaq::Fragment](#)

Namespaces

- namespace [yaodaq](#)

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 <ixwebsocket/IXWebSocketCloseInfo.h>
00012 #include <ixwebsocket/IXWebSocketErrorInfo.h>
00013 #include <ixwebsocket/IXWebSocketMessage.h>
00014 #include <ixwebsocket/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 yaodag
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 yaodag
00029
00030 #endif // YAODAG_CLASS_HPP

```

9.29 yaodag/StatusCode.hpp File Reference

```
#include <stdint>
```

Namespaces

- namespace `yaodag`

Enumerations

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

9.30 StatusCode.hpp

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

```

00001 #ifndef YAODAG_STATUSCODE
00002 #define YAODAG_STATUSCODE
00003
00008 #include <stdint>
00009
00010 namespace yaodag
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 yaodag
00022
00023 #endif

```

9.31 yaodag/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 <cstdint>
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 "yaodq/IXWebsocketMessage.hpp"
00006
00007 namespace yaodq
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
00079 double Error::getWaitTime() const { return get()["content"]["wait_time"].get<double>(); }
00080
00081 int Error::getHttpStatus() const { return get()["content"]["http_status"].get<int>(); }
00082
00083 std::string Error::getReason() const { return get()["content"]["reason"].get<std::string>(); }
00084
00085 bool Error::getDecompressionError() const { return
00086     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 ) :
00087     Ping( ping ) { setConnectionStateInfos( connectionState ); }
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 ) :
00092     Pong( pong ) { setConnectionStateInfos( connectionState ); }
00093 // Fragment
00094 Fragment::Fragment( const ix::WebSocketMessagePtr& fragment ) : IMessage( MessageType::Fragment ) {}
00095
00096 Fragment::Fragment( const ix::WebSocketMessagePtr& fragment, std::shared_ptr<ConnectionState>&
00097     connectionState ) : Fragment( fragment ) { setConnectionStateInfos( connectionState ); }
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 = (
00012     static_cast<std::int_least8_t>( domain ) << 24 ) + ( static_cast<std::int_least8_t>( c_class ) << 16 ) +
00013     static_cast<std::int_least16_t>( family ); }
00014
00015 std::int_least8_t Key::getDomain() const { return ( m_Key >> 24 ) & 0xFF; }
00016
00017 std::int_least8_t Key::getClass() const { return ( m_Key >> 16 ) & 0xFF; }
00018
00019 std::int_least16_t Key::getFamily() const { return (m_Key)&0xFFFF; }
00020
00021 std::int_least32_t Key::getKey() const { return m_Key; }
00022 } // 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
```

