XEngine Message Queue Docment

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# Preface

## Reader

Development ,test

## **Overview**

This document contains related technical descriptions and interface definitions

## Associate Module

The service used XEngine as Network Toolki.if you want to use code,you have to installed XEngine

And This service used library for jsoncpp

# 一 Technical structure

Should be bind Three port when Start service.these are tcp message port and http message port and websocket port

## TCP

The TCP protocol uses the standard protocol header of XEngine to realize message communication. The TCP protocol is faster and has more functions.

## HTTP

Send and recv Message through post.You only need to send the URL of the address and port, and then load the JSON. HTTP does not support subscription mode

### WEBSOCKET

Websocket can provide message support for the HTTP front end, using the standard WEBSOCKET protocol, and the type using TEXT. WEBSOCKET messages can be realized with JSON with the same load as HTTP, and WEBSOCKET messages support subscription mode.

# 二 Configure Env

## 2.1 WINDOWS

Need to download XEngine.

Complie and run and debug by vs2019.

Download address:https://gitee.com/xengine/libxengine

### 2.1.1 Configure Environment

After Download XEngine,if you download is zip file.you have to uncompress for xengine and add user environment value.

You need add to follow two user environment in your system

* XEngine\_Include  XEngine is header path
* XEngine\_Library  XEngine is library path

Like this:



You need jsoncpp env.you can install through vcpkg

And you can download for youself:https://github.com/open-source-parsers/jsoncpp/

If you download for youself,you need install and complie by youself and configure project attributes vc++ path in your vs2019

### 2.1.2 complie and run

When you complete with configuration.you can come in code path.open XEngine\_MQServiceApp.sln by vs2019.and choice x86(debug or release) or x64(just release) complie.

If environment not have error.complie is succesed.contrain 4 module and 1 exe program

And you need copy file under XEngine\_Release to your complied dir.next step copy file under XEngine depend Module and jsoncpp module to your complied dir.

If not have error,you can see follow the infomation



Note: You can run the program directly, the system will prompt you what you need, you can directly enter the XEngine directory to search.

## 2.2 LINUX

### 2.2.1 Evnironment Configure

If you use linux.you must running on ubuntu(20.04) or centos(8.x)...

After download complete.you can install xengine it by the shell file.

Execute command:sudo XEngine\_RunEnv.sh -i 3

of course,and need install jsoncpp environment to your system.

Ubuntu:sudo apt install libjsoncpp-devel -y

Centos:sudo dnf install jsoncpp-devel -y

### 2.2.2 Complie and Run

Configure complete.you can complie it.open terminal in you xengine\_storage dir and execute command.

complie:make

install:make FLAGS=InstallAll

clean:make FLAGS=CleanAll

If there is no error.you can see complied XEngine\_MQServiceApp file in XEngine\_Release

You can running at terminal.if there is no error,you can infomation:



## 2.3 Version Requirements

### 2.3.1 System Version

Minimum version requirements:

WINDOWS: win7 sp1

Ubuntu:20.04

Centos:8.x

### 2.3.2 Software Version

Minimum version requirements:

XEngine:V7.14

JsonCpp:V1.9.2

# 三 Interface Protocol

## 3.1 TCP

Please Note:The wReserver field of the protocol header will be used as the server reply processing result. 0 means the processing is successful, other values mean failure  
 whether protocol load is general protocol or HTTP protocol,they can be load json data.

### 3.1.1 Post Protocol

To use the message queue, you need to deliver a packet to the message queue server first, so that other programs can get a packet from the message queue service.

#### 3.1.1.1 Request

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REQPOST

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ) + MSGLEN

byVersion = 1

byIsReply = TRUE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

DATA in tail

#### 3.1.1.2 Reply

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REPPOST

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

### 3.1.2 Get Protocol

#### 3.1.2.1 Requestion

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REQGET

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = TRUE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

#### 3.1.2.2 Reply

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REPGET

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ) + MSGLEN

byVersion = 1

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

Protocol Body:if sucess,protocol follow get data

### 3.1.3 Delete Protocol

#### 3.1.3.1 Requestion

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REQDEL

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = TRUE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

#### 3.1.3.2 Reply

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REPDEL

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

### 3.1.4 Create Topic

Post a packet to message queue,you must create a topic,you have to set topic name,data can be enter the message queue

#### 3.1.4.1 Requestion

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REQCREATE

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = TRUE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

#### 3.1.4.2 Reply

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REPCREATE

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

### 3.1.5 Delete Topic

#### 3.1.5.1 Requestion

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REQDELETE

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = TRUE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

#### 3.1.5.2 Reply

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REPDELETE

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

### 3.1.6 Subscribe Topic

Subscribing to the topic allows the user to actively push a message to the subscribed client every time there is new content in the topic after the request is successfully subscribed

#### 3.1.6.1 Requestion

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REQNOTIFY

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

#### 3.1.6.2 Reply

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_REPNOTIFY

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ)

byVersion = 1

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

### 3.1.7 Notification Message

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = 0

unOperatorType = ENUM\_XENGINE\_COMMUNICATION\_PROTOCOL\_TYPE\_XMQ

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_MQ\_MSGNOTIFY

unPacketSize = sizeof(XENGINE\_PROTOCOL\_XMQ) + message

byVersion = 1

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

typedef struct tag\_XEngine\_ProtocolXmq

{

*TCHAR* tszMQKey[256];

\_int64x nSerial;

int nKeepTime;

int nGetTimer;

}XENGINE\_PROTOCOL\_XMQ, \*LPXENGINE\_PROTOCOL\_XMQ;

...body

## 3.2 HTTP

HTTP support post requestion now.make sure event through json

Content of Requestion and reply same to tcp protocol

st\_Payload mean is load data.nPayType is 0 mean it is string,is 1 as base64 codec,if the value is 1, Then you need base64 decoding

If no have payload,,st\_Payload can not be exist.

Serial can not be empty When you get the message

wReserve feild Must existed When subscribe message protocol

### 3.2.1 Request

{  
    **"unOperatorType"**:**7**,  
    **"unOperatorCode"**:**7001**,

**"wReserve"**:**1**,  
    **"st\_MQProtocol"**:{  
        **"tszMQKey"**:**"主题名"**,  
        **"nSerial"**:**0**,  
        **"nKeepTime"**:**0**,  
        **"nGetTimer"**:**0**  
    },  
    **"st\_Payload"**:{  
        **"nPayType"**:**0**,  
        **"nPayLen"**:**6**,  
        **"tszPayData"**:**"123456"**  
    }  
}

### 3.2.2 Reply

{  
    **"unOperatorType"**:**7**,  
    **"unOperatorCode"**:**7001**,  
    **"wReserve"**:**0**,  
    **"st\_MQProtocol"**:{  
        **"tszMQKey"**:**"主题名"**,  
        **"nSerial"**:**0**,  
        **"nKeepTime"**:**0**,  
        **"nGetTimer"**:**0**  
    },  
    **"st\_Payload"**:{  
        **"nPayType"**:**0**,  
        **"nPayLen"**:**6**,  
        **"tszPayData"**:**"123456"**  
    }  
}

## 3.3 WEBSOCKET

WebSocket Protocol same load as http,return too,WebSocket request need ping and pong to heartbeat when is not have data change.

Websocket payload type only is TEXT.websocket can be used subscribe mode.

Websocket as long connection.can be not set serial whe you get message.

# 四 Configure Description

## 4.1 Service Configure

Basic Configure File:XEngine\_Config.json

### 4.1.1 basic configure

* bDeamon: 1 deamon process run 0 is terminal run
* tszTopic:Default Topic Name
* nTCPPort:tcp port
* nHttpPort:http port
* nWSPort:websocket port

### 4.1.2 Max Configure

XMax Configure

* MaxClient Allow Max Client Count
* MaxQueue Allow Max Queue
* IOThread:network io process threads number
* nTCPThread:tcp process threads number
* nHttpThread:http process threads number
* nWSThread:websocket process thread number

### 4.1.3 Time Configure

XTime Configure

* bHBTime,1 is enable heartbeat,0 disable
* nDBMonth:database save time,default month
* nTimeCheck:check time
* nTCPTimeOut:how time check once
* nHttpTimeOut:same nTCPTimeOut
* nWSTimeOut:same to nTCPTimeOut

### 4.1.4 Log Configure

XLog Configure

* MaxSize:Log file size
* MaxCount:Log File Number
* LogLeave:Allow save level

### 4.1.5 Database Configure

XSql Configure

# 五 Advanced configuration

# appendix

## Appendix 1 Type Define

reference file:XEngine\_CommHdr.h

## Appendix 2 Protocol Define

reference file:XEngine\_ProtocolHdr.h

## Appendix 3 Transformation Definition

reference file:XEngine\_Types.h only LINUX

## Appendix 4 update log