XEngine\_StreamMedia Service Docment

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# Preface

## Reader

Development ,tester,qa

## **Overview**

This document contains related technical descriptions and interface definitions

## Related modules

This service uses XEngine as the development package. To use this service code, the XEngine development environment must be configured and installed.

# 一 Technical structure

The Service implemented through c/c++,Protocol use to tcp.

# 二 Configure Environment

## 2.1 XEngien Env

Need to download XEngine.

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

<https://github.com/libxengine/xengine>

Configure the environment as described in the XEngine Readme file

### 2.2 Windows

### 2.1.2 complie and run

When you complete with configuration.you can come in code path.open XEngine.sln by vs

If environment not have error.complie is succesed

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

Note: You can run the program directly, the system will prompt you what you need, you can directly enter the XEngine directory to search,you can also use vscopy-\*.bat to copy dependent module.

## 2.2 LINUX

### 2.2.1 Evnironment Configure

If you use linux.you must running on ubuntu20.04 or centos8.x(Compatible with Centos-like systems)...

### 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\_\*App file in XEngine\_Release

## 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:V7.34

# 三 Interface Protocol

## 3.1 XStream Protocol

This protocol is the streaming media push and pull streaming protocol of XEngine. It is very convenient and simple

### 3.3.1 Push Protocol

The TOKEN field of the protocol header of the streaming media push protocol is required, and it is filled in when the request is made, indicating that the user has the unique ID of the stream after the creation is successful, so that the user can clearly know his own streaming ID. For example, if the stream ID is 123, then Your push address is:Rtsp://192.168.1.10/live/123

#### 3.3.1.1 Request

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = Stream Media Token

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

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_SMS\_REQXPUSH

unPacketSize = sizeof(XENGINE\_AVPROTOCOL)

byVersion = 0

byIsReply = TRUE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

XENGINE\_PROTOCOL\_AVINFO

#### 3.3.1.2 Reply

wReserve:If this value is 0, it means success. Other values indicate failure, refer to the following information:

* 1:Protocol Ver failed
* 2:is not push stream protocol
* 3.No SPS or PPS information is found, this error will appear in the first packet of the push stream if there is an error, if there is no error, it will not continue to push, that is, if there is an error, you will receive two packet headers

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = Stream Media Token

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

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_SMS\_REPXPUSH

unPacketSize = 0

byVersion = 0

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

### 3.3.2 Pull Protocol

It is used to pull the data stream from the streaming media server, this is necessary before starting to play

#### 3.3.2.1 Request

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = Stream Media Token

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

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_SMS\_REQXPULL

unPacketSize = 0

byVersion = 0

byIsReply = TRUE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

#### 3.3.2.2 Reply

wReserver:0,success,1:not found this token:

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = Stream Media Token

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

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_SMS\_REPXPULL

unPacketSize = sizeof(XENGINE\_AVPROTOCOL)

byVersion = 0

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

XENGINE\_PROTOCOL\_AVINFO

### 3.3.3 Control Protocol

There is no reply from the control protocol, only the request. If the operation is found to be unsuccessful, it can be sent again until the instruction is successful

#### 3.3.3.1 Play Control

Only if this protocol is requested from the server, the server will push data to the pull stream end

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = Stream Media Token

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

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_SMS\_CTRLPLAY

unPacketSize = 0

byVersion = 0

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

#### 3.3.3.2 Play Pause

If you don't want to continue receiving data, you can call this function to pause the server's pull stream, and if you want to continue playing, you can call the play protocol

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = Stream Media Token

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

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_SMS\_CTRLPAUSE

unPacketSize = 0

byVersion = 0

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

### 3.3.4 Notify Protocol

The notification protocol is used to handle the push-pull state, inform the other party of the current status of receiving and processing data, and let the sender or receiver adjust the sending frequency

#### 3.3.4.1 Pull Stream Notify

The pull-stream protocol is the same as the push-stream protocol, but the CODE value is different, which will not be demonstrated in the following.

Also note: the push stream protocol is not used for pull stream, similarly, the pull stream notification protocol cannot be used for push stream

Protocol Header:

wHeader = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_HEADER

xhToken = Stream Media Token

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

unOperatorCode = XENGINE\_COMMUNICATION\_PROTOCOL\_OPERATOR\_CODE\_SMS\_STATPUSH

unPacketSize = sizeof(XENGINE\_SMSPROTOCOL)

byVersion = 0

byIsReply = FALSE

wReserve = 0

wPacketSerial = 0

wTail = XENGIEN\_COMMUNICATION\_PACKET\_PROTOCOL\_TAIL

Protocol Body:

XENGINE\_SMSPROTOCOL

## 3.2 JT1078 Stream Protocol

Refer to the JT1078-2014 (2016) document customized for the platform of the Ministry of Communications

## 3.3 GB28181 Stream Protocol

Refer GB/T28181-2016 Docment

# 四 Configure Description

## 4.1 Service Configure

Basic Configure File:XEngine\_Config.json

### 4.1.1 basic configure

* tszSMSUrl:Push Address
* tszIPAddr: location ip address
* bDeamon: 1 deamon process run 0 is terminal run
* nCenterPort:tcp port
* nHttpPort:http port

### 4.1.2 Max Configure

XMax Configure

* nMaxClient Allow Max Client Count
* nMaxQueue Allow Max Queue
* nIOThread:network io process threads number
* nCenterThread:tcp process threads number
* nHttpThread:http process threads number

### 4.1.3 Time Configure

XTime Configure

* nTimeCheck:check time
* nCenterTimeOut:how time check once
* nHttpTimeOut:same nTCPTimeOut

### 4.1.4 Database Configure

XSQL Configure,MYSQL Service

* tszSQLAddr:Database Address
* nSQLPort:Database Port
* tszSQLUser:User
* tszSQLPass:Password

### 4.1.5 Log Configure

XLog Configure

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

## 4.2 JT1078 Service

Configure File:XEngine\_JT1078Config.json

### 4.2.1 Base Configure

* tszIPAddr:;Local Address
* bDeamon: 1 deamon process run 0 is terminal run
* nAudio:Audio Channle Number,greater than 0 enable
* nStreamPort:Live Stream Port
* nRecordPort:Record Stream Port

### 4.2.2 Max Configure

XMax Configure

* nMaxClient Allow Max Client Count
* nMaxQueue Allow Max Queue
* nIOThread:network io process threads number
* StreamThread:Live Stream process threads number
* RecordThread:Record Stream process threads number

### 4.2.3 Time Configure

XTime Configure

* nTimeCheck:check time
* nStreamTimeout:Live Stream Timeout
* nRecordTimeout:Record Stream Timeout

### 4.2.4 Client Configure

XClient Configure

* tszIPAddr:Service Address
* nPort:Server Port
* nMaxConnect:Client Connect Number

# appendix

## Appendix update log