
User manual

(GB28181 Device)

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Declaration

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Chapter 1 Key features

Support GB28181 2016 version

Support GB28181 2022 version

Support H264/H265 PS package

Support audio talk

Support subscription, notification function

Support recording playback

Support recording download

Support audio broadcast

Support video streaming from camera

Support video streaming from living screen

Support video streaming from application windows

Support audio streaming from microphone

Support recording system sound on windows

Support streaming from rtsp/rtmp/srt/http mjpeg video source

Support media proxy on-demand connection

Support cross-platform compilation

Small target file size

Suitable for embedded device development

Chapter 2 Configuration

The default configuration file of GB28181 device is gb28181device.cfg.

2.1 Configuration Templates

```
<?xml version="1.0" encoding="utf-8"?>
<config>
  <version>2016</version>
  <server_ip>192.168.3.36</server_ip>
  <server_port>5060</server_port>
  <server_id>34020000002000000001</server_id>
  <server_domain>3402000000</server_domain>
  <local_port>0</local_port>
  <device_id>34020000001110000001</device_id>
  <device_name>Happytimesoft</device_name>
  <password>12345678</password>
  <protocol>UDP</protocol>
  <media_protocol>TCP</media_protocol>
  <reg_expires>3600</reg_expires>
  <heartbeat_interval>10</heartbeat_interval>
  <heartbeat_count>3</heartbeat_count>
  <media_base_port>19000</media_base_port>
  <log_enable>1</log_enable>
  <log_level>1</log_level>
  <channel>
    <cid>34020000001310000001</cid>
    <cname>channel1</cname>
    <media_url>test.mp4</media_url>
    <ondemand>0</ondemand>
    <output>
      <video>
        <codec>H264</codec>
        <width></width>
        <height></height>
```

```
        <framerate></framerate>
        <bitrate></bitrate>
    </video>
    <audio>
        <codec>G711A</codec>
        <samplerate>8000</samplerate>
        <channels>1</channels>
        <bitrate></bitrate>
    </audio>
</output>
</channel>
</config>
```

2.2 Configuring Description

<version>

Specify GB28181 version, 2016 or 2022.

<server_ip>

Specify the SIP server address.

<server_port>

Specify the SIP server port.

<server_id>

Specify the SIP server number.

<server_domain>

Specify the SIP server domain.

<local_port>

Local SIP port, 0 means automatically assigned by the system.

<device_id>

Specified device number.

<device_name>

Specified device name.

<password>

Specify device registration password.

<protocol>

SIP signaling protocol, "tcp" or "udp".

<media_protocol>

Media transfer protocol, "tcp" or "udp", valid for active outbound call sessions.

For inbound call sessions, the media transport protocol is determined by the caller.

<reg_expires>

Registration timeout, unit is second.

The device sends a registration message before the registration timeout interval.

<heartbeat_interval>

Heartbeat message interval, in seconds.

Send heartbeat message according to heartbeat interval.

<heartbeat_count>

Heartbeat timeout count, if the specified number of heartbeat responses is not received, the device will be re-register.

Note : If the server does not respond heartbeat messages, please set it to 0.

<media_base_port>

Media transmission base port.

Assign the local media transmission port upward from the configured port.

Note : If you need to run multiple instances of gb28181 device, this parameter

for each instance cannot be the same.

The media base port interval of each instance should be greater than the number of call sessions that the instance needs to support multiplied by 8.

For example, the media base port of instance 1 is 19000, which needs to support up to 10 sessions. Then the media base port of instance 2 should be configured at least as $19000 + 10 * 8 = 19080$.

<log_enable>

Whether to enable the log function, 0-disable, 1-enable

<log_level> The log level:

TRACE	0
DEBUG	1
INFO	2
WARN	3
ERROR	4
FATAL	5

<channel> : Configure channel properties, you can configure multiple.

NOTE: The DEMO version only supports two channels

<cid>

Specify channel ID.

<cname>

Specify channel name.

<media_url>

Specify the media source.

If local media files, specify the file path.

Supports rtsp/rtmp/srt/http mjpeg stream address.

Also supports the following special media url:

videodevice : Capture video data from camera

screenlive : Capture video data from living screen

audiodevice: Capture audio data from audio device

videodevice+audiodevice: Capture video data from camera and capture audio data from audio device

screenlive+audiodevice: Capture video data from living screen and capture audio data from audio device

window=*[window title]*: Capture video data from application windows

If your system have multiple video capture device, you can use videodeviceN

The N to specify the video capture device index, start from 0

If your system have multiple audio capture device, you can use audiodeviceN

The N to specify the audio capture device index, start from 0

If your system have multiple monitors, you can use screenliveN

The N to specify the monitor capture device index, start from 0

videodevice or audiodevice can also specify the device name, such as : videodevice=testvideo

Run the ***gb28181device -l device*** command to get the device name.

Note that there can be no spaces in the device name, if the device name contains spaces, you need to use %20 instead of spaces.

If the device name is “FaceTime HD Camera (Built-in)” :

videodevice=FaceTime%20HD%20Camera%20(Built-in)

Captures the window with the specified window title, run the ***gb28181device -l window*** command to view valid window titles

Note that there can be no spaces in the window title, if the window title contains spaces, you need to use %20 instead of spaces.

If the window title is “VLC media player” :

window=VLC%20media%20player

<ondemand>: Connect on demand

If mediaurl is a stream address, specify whether to connect on demand.

1-Connect when needed, 0-Always keep connected

<output> : Specify the audio and video output parameters

<video> : Specify the video output parameters

<codec> : Specify the video codec, it can specify the following value:

H264 : output H264 video stream

H265 : output H265 video stream

MP4 : output MPEG4 video stream

NOTE: DEMO version does not support H265

<width>

Specify the output video width, if 0 use the original video width (living screen stream use the screen width, camera stream use the default width)

<height>

Specify the output video height, if 0 use the original video height (living screen stream use the screen height, camera stream use the default height)

<framerate>

Specify the output video framerate, if 0 use the original video framerate (living screen and camera stream use the default value 25)

<bitrate>

Specify the output video bit rate, if 0, automatically calculate the output bit rate, the unit is kb/s.

Note: This parameter is valid only if encoding is required or if transcoding is required.

<audio> : Specify the audio output parameters

<codec> : Specify the audio stream codec, it can specify the following value:

G711A: output G711 a-law audio stream

G711U: output G711 mu-law audio stream

AAC: output AAC audio stream

NOTE: DEMO version does not support AAC

<samplerate>

Specify the audio sample rate, it can specify the following values: 8000, 11025, 12000, 16000, 22050, 24000, 32000, 44100, 48000

If 0 use the original audio sample rate (audio device stream use the default value 8000)

<channels>

Specify the audio channel number, 1 is mono, 2 is stereo

If 0 use the original audio channel number (audio device stream use the default value 2)

<bitrate>

Specify the output audio bit rate, if 0, automatically calculate the output bit rate, the unit is kb/s.

Note: This parameter is valid only if encoding is required (such as screenlive, videodevice) or if transcoding is required.

Chapter 3 运行时配置

gb28181device 结束运行时，会将运行时配置(包括基本参数配置，视频参数选项配置，视频参数属性配置，视频录制计划配置，报警录制配置，视频画面遮挡配置，画面翻转配置，报警上报开关配置，前端 OSD 配置，图像抓拍配置，预置位配置，巡航轨迹配置) 写入运行时配置文件 `runtimeconfig.cfg`，下次启动的时候将从运行时配置文件加载运行时配置参数。

Chapter 4 GB28181 自动化测试工具

1. 启动 GB28181 自动化测试工具，设置测试设备地址：

The screenshot shows the 'GB28181 自动化测试工具' (GB28181 Automation Testing Tool) window. The '添加设备' (Add Device) tab is active. The configuration fields are as follows:

Field	Value	Annotation
协议选择 (Protocol Selection)	GB28181	
测试设备IP (Test Device IP)	192.168.1.50	此处填写测试设备IP地址 (Enter test device IP address here)
本地IP (Local IP)	192.168.1.50	此处选择测试工具IP地址 (Select test tool IP address here)
设备类型 (Device Type)	IPC	

域名配置 (Domain Configuration):

Field	Value
sipID	34020000002000000001
sip域 (sip domain)	3402000000

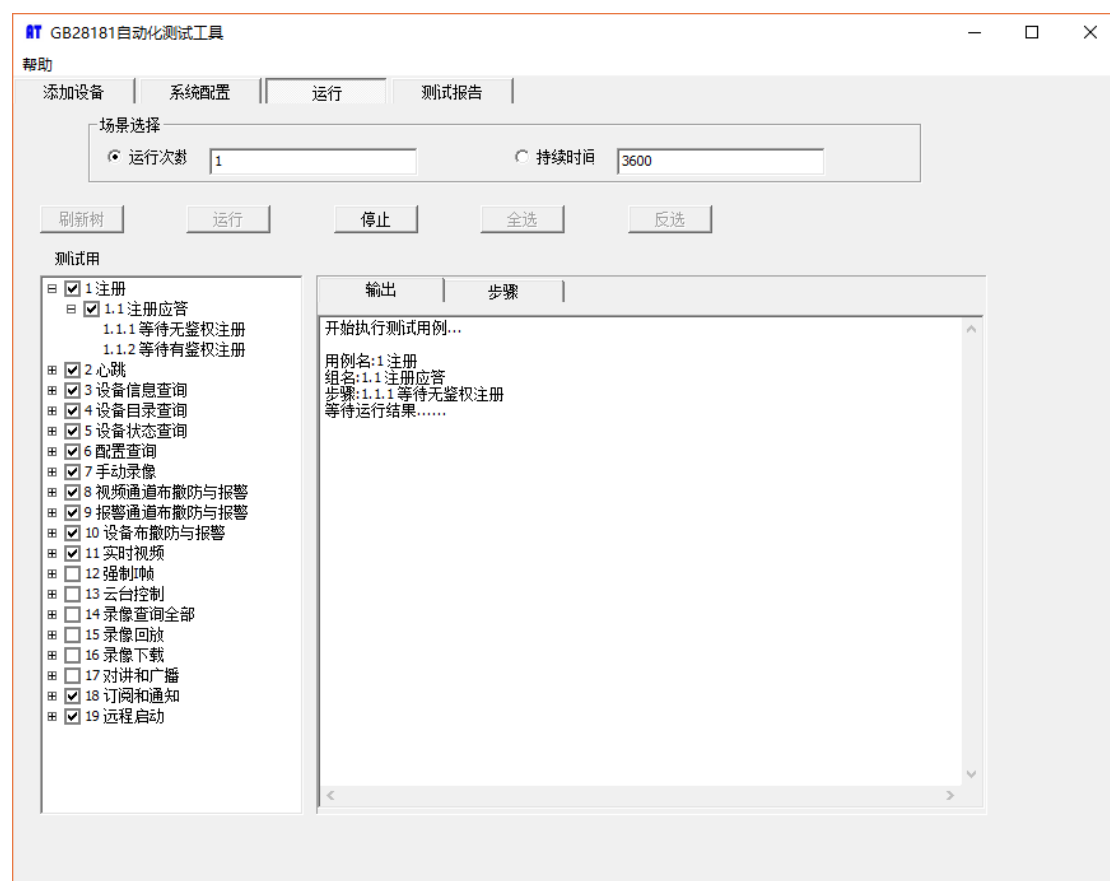
录像回放与下载参数配置 (Recording Playback and Download Parameter Configuration):

Field	Value
下载速度 (Download Speed)	4
开始时间 (Start Time)	2016-02-18T08:00:00
结束时间 (End Time)	2017-05-18T18:00:00

时间格式如: 2010-10-10T08:00:00 (Time format example: 2010-10-10T08:00:00)

确定 (Confirm)

2. 勾选测试所需的步骤，然后单击“运行”。



3. 编辑 GB28181 Device 配置文件 gb28181device.cfg, 指定 SIP 服务器地址, 然后启动 GB28181Device 进行测试.

Chapter 5 Run GB28181Device

The gb28181 device is a console application.

Windows: to run the gb28181 device, simply type "gb28181device".

Linux: to run the gb28181 device, type "./start.sh", on linux platform, gb28181 device run as deamon by default.

gb28181 device supports the following command line options:

`-c config` specify the configuration file

`-c` option specifies the configuration file, if not specified, the default configuration gb28181device.cfg is used.

`-l [device|videodevice|audiodevice|window]`

`-l device` list available video and audio capture device

`-l videodevice` list available video capture device

`-l audiodevice` list available audio capture device

`-l window` list available application window

Below is sample output of `-l device`:

gb28181device -l device

Available video capture device :

index : 0, name : FaceTime HD Camera (Built-in)

Available audio capture device :

index : 0, name : Headset Microphone (Apple Audio Device)

index : 1, name : Internal Digital Microphone (Apple Audio Device)

Note : The DEMO version only supports two channels

The video stream of the demo version lasts up to 2 hours