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# User manual

(GB28181 NVR)

*Happytimesoft Technology Co., LTD*

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## Declaration

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## Chapter 1 Key features

Support onvif ip cameras

Support transparent PTZ operation

Support GB28181 2016 version

Support GB28181 2022 version

Support H264/H265 PS package

Support subscription, notification function

Support recording playback

Support recording download

Support audio broadcast

Support streaming video from camera

Support media proxy on-demand connection

Support cross-platform compilation

Small target file size

Suitable for embedded device development

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## Chapter 2 Configuration

### 2.1 Configuration Templates

```
<?xml version="1.0" encoding="utf-8"?>
<config>
  <version>2016</version>
  <server_ip></server_ip>
  <server_port>5060</server_port>
  <server_id>34020000002000000001</server_id>
  <server_domain>3402000000</server_domain>
  <local_port>0</local_port>
  <device_id>34020000001180000001</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>0</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>
    <ondemand>1</ondemand>
    <onvif_device>
      <device_ip>192.168.3.36</device_ip>
      <onvif_port>8000</onvif_port>
      <username>admin</username>
      <password>admin</password>
      <https>0</https>
      <profile_index>0</profile_index>
    </onvif_device>
    <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.

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<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 to 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

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<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.

<ondemand>: Connect on demand

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

1-Connect when needed, 0-Always keep connected

<onvif\_device> : Onvif camera configuration information

<device\_ip>

onvif device ip

<onvif\_port>

onvif device onvif port

<username>

onvif device login username

<password>

onvif device login password

<https>

https connection flag, 1-enable,0-disable

<profile\_index>

Onvif device profile index, start from 0.



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The rtsp stream address will be obtained from this profile.

<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>

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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.

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## Chapter 3 Configuration file

When running `gb28181nvr` for the first time, use the default configuration file `gb28181nvr.cfg`.

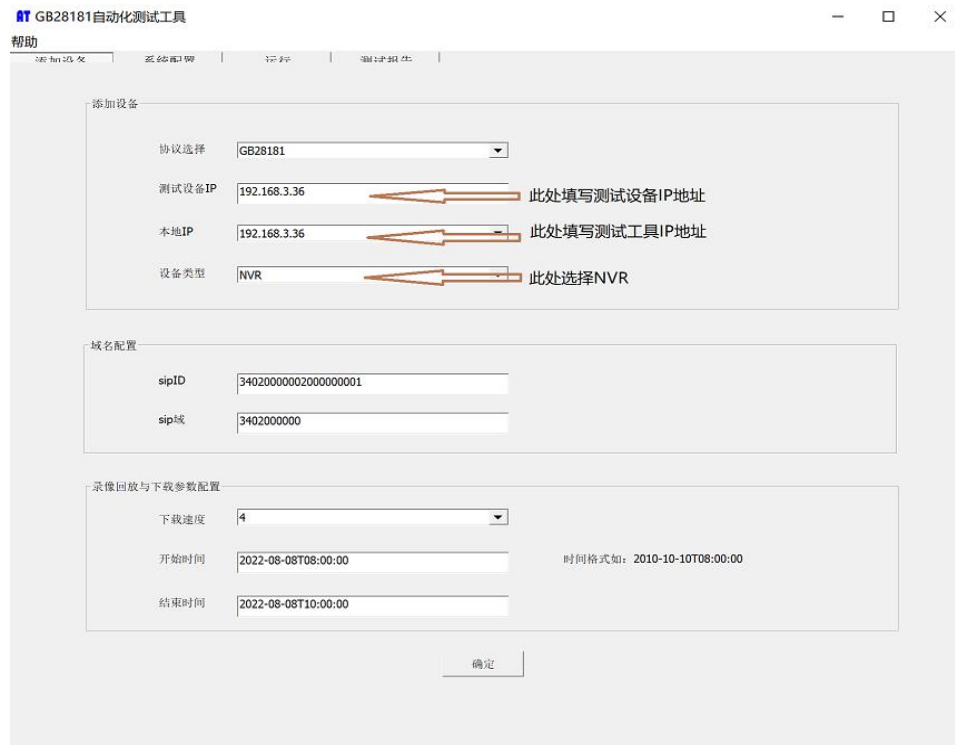
When stop `gb28181nvr`, it writes the runtime configuration into the `runconfig.xml` file, and the configuration in the `runconfig.xml` file will be load at the next time it runs.

The runtime parameters saved by `runconfig.xml` include `BasicParam`, `VideoParamOpt`, `VideoParamAttribute`, `VideoRecordPlan`, `VideoAlarmRecord`, `PictureMask`, `FrameMirror`, `AlarmReport`, `OSDConfig`, `SnapShotConfig`, `HomePosition`.

`BasicParam` is common to both 2016 and 2022 versions, while all other parameters are 2022 version parameters.

## 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：

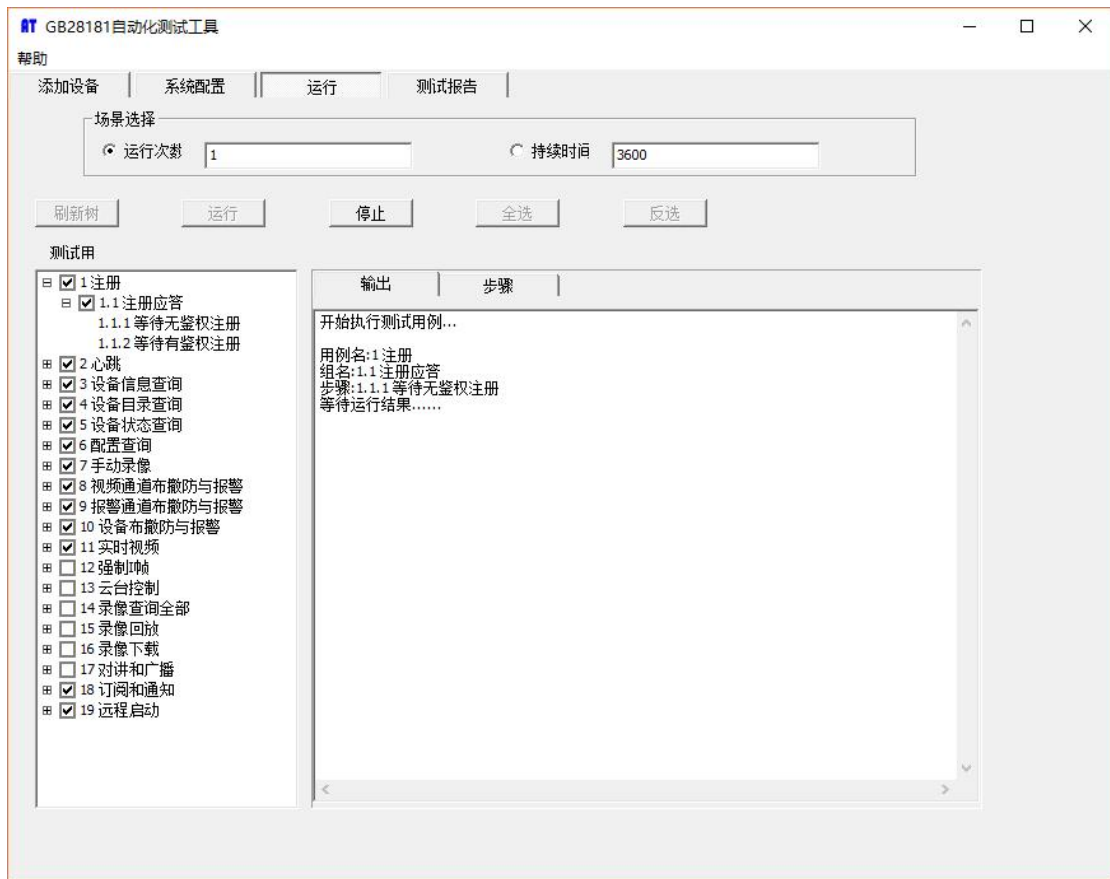


The screenshot shows the 'GB28181 自动化测试工具' (GB28181 Automation Testing Tool) configuration window. The window has a title bar with standard OS controls and a menu bar with options: 帮助 (Help), 添加设备 (Add Device), 设备配置 (Device Configuration), 运行 (Run), and 导出报告 (Export Report). The main content area is divided into three sections:

- 添加设备 (Add Device):** This section contains four fields with red arrows pointing to them and explanatory text:
  - 协议选择 (Protocol Selection): A dropdown menu set to 'GB28181'.
  - 测试设备IP (Test Device IP): A text input field containing '192.168.3.36'. To its right is the text '此处填写测试设备IP地址' (Enter test device IP address here).
  - 本地IP (Local IP): A text input field containing '192.168.3.36'. To its right is the text '此处填写测试工具IP地址' (Enter test tool IP address here).
  - 设备类型 (Device Type): A dropdown menu set to 'NVR'. To its right is the text '此处选择NVR' (Select NVR here).
- 域名配置 (Domain Configuration):** This section contains two text input fields:
  - sipID: A text input field containing '340200000200000001'.
  - sip域 (sip domain): A text input field containing '340200000'.
- 录像回放与下载参数配置 (Recording Playback and Download Parameter Configuration):** This section contains three fields:
  - 下载速度 (Download Speed): A dropdown menu set to '4'.
  - 开始时间 (Start Time): A text input field containing '2022-08-08T08:00:00'. To its right is the text '时间格式如: 2010-10-10T08:00:00' (Time format like: 2010-10-10T08:00:00).
  - 结束时间 (End Time): A text input field containing '2022-08-08T10:00:00'.

At the bottom center of the window is a '确定' (Confirm) button.

2. 勾选测试所需的步骤，然后单击“运行”。



3. 编辑 GB28181 NVR 配置文件 gb28181nvr.cfg, 指定 SIP 服务器地址, 端口等信息, 然后启动 GB28181NVR 进行测试.

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## Chapter 5 Run GB28181NVR

The gb28181 NVR is a console application.

Windows: to run the gb28181 NVR, simply type "gb28181nvr".

Linux: to run the gb28181 NVR, type "./start.sh", on Linux platform, gb28181 NVR run as daemon by default.

gb28181 NVR supports the following command line options:

`-c config` specify the configuration file

`-c` option specifies the configuration file, if not specified, the default configuration gb28181nvr.cfg is used.

Note : The DEMO version only supports two channels

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