USER MANUAL

4CH ProVideo Streaming Encoder

DMB-8904A-EC Classic

YOUR BEST PARTNER!

DIGICAST

Digital Future Life

www.digicast.cn

Caution Statements:

Please observe the following safety requirements before operating the equipment.

Electrical Shock

Thoroughly check your electrical grounding and comectors prior to powering. Make sure all connectors are of the three prong type to ensure proper grounding.

Whenever the equipment is not used for a prolong period of time, you should disconnect the power cord 。

Power Disconnect

Disconnect the power cord under the following conditions：

1.damage on cord and connector

2.equipment get wet or substantial moisture enter the chassis

3.exposure to rain or water

Do Not Open The Equipment

1. Do not try to repair by yourself
2. Do not use unauthorized part for repair
3. Do not open the covers of the equipment without proper factory authorization

Avoid Moisture

Do not use this equipment in high moisture environment .

No Heavy Stacking

Do not stack the equipment back to back to allow proper ventilation .

No Touching with Bare Hands

Do not touch the equipment during heavy lightening condition.

Caution

1.Do not place this equipment on unstable support.

2.Do not place objects on top of the equipment to block up the ventilation opening.

3.Do not place radio active instrument or object on top of adjacent to the equipment.

4.Provide proper room ventilation during operation of this equipment.

5.Verify with the repair engineer or authorized entity after repair is done to be sure the equipment can be put back to operation.

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Chapter 1 Introduction

1.1 Outline

DMB-8904A-EC Classic is suit for professional broadcast level IPTV&OTT system construction, hospitality IPTV application, Remote HD multi-window video conference, Remote HD education and Remote HD medical treatment etc.

Digicast multiscreen multiprotocol series IPTV Encoder are designed to address the increasing demand for video delivery to Internet and mobile devices. DMB-8904A-EC Classic H.264/H.265 HD 4 Channel IPTV Encoder supports audio and video collection by 4-Ch HD HDMI input. For HDM input, each channel of HDMI input supports output 4 groups IP streams with four different resolution and four different bitrates to meet different size screen and different bandwidth condition. Each group of IP stream supports kinds of main protocols output (HLS, RTMP, HTTP, RTSP, UDP), this enable Encoder to deliver H.264/H.265 IP streams by independent IP output to various servers for IPTV & OTT application. Such as Facebook Server, YouTube Server, Ustream Server, Adobe Flash Server, Wowza Media Server, Windows Media Server and some other servers based on HLS/UDP/RTSP/RTMP/HTTP/ONVIF protocols. Moreover, providing username, password matching function which required from destination server, to avoid the streaming which do not authorized.

1.2 Features

- Video Input: 4-Channel HDMI work simultaneously
- Video Compression: HD H.264/MPEG-4/H.265 AVC, up to 2 channels 4K or 4 channels **1080P@60fps**
- All protocols (HLS, RTMP, HTTP, RTSP, SRT,UDP) can be working simultaneously
- Support output up to **4 groups** TS over IP streams with **4 different resolutions and 4 different bitrates** by each HDMI channel input
- Having 2*Jack(3.5mm) and 4*HDMI embedded audio input
- Support RTMP User name and Pass word for authentication of IPTV Server
- Capable of OSD settings for logo, text and Scroll Caption; Adjustable of audio gain;

- Support H.264 Baseline Profile/Main Profile/High Profile and MP3 & AAC audio compression
- Bitrate mode: CBR/VBR
- Capable of image parameter settings
- Configurable of Multi-Screen, Multi-Protocol, Low bitrate with high quality image.
- **Any iOS browsers (iPhone, iPad, MacBook etc.) can have streams from IPTV Streaming Encoder in Anytime, Anywhere by HLS protocol without install any software players.**
- **Any terminal devices/decoders can have streams from IPTV Streaming Encoder directly by RTMP protocol with software players (such as VLC).**
- Support **HDCP** protocol
- Support ONVIF Network Video Protocol
- Support multiple equipment display at the same time on a computer
- System supports WINDOWS XP/VISTA/SERVER2003/SERVER2008/WIN7 32 and WIN7 64, LINUX
- Web-based management.
- Full-duplex mode 1000M

1.3 Specifications

VIDEO Encoding

- Video compression: H.264/AVC/H.265 High/Main/Baseline Profile Level 4.0
- Frame rate: up to 30fps
- Video input: 4*HDMI (HDCP protocol)

Resolution:

Main stream:

1920x1080,1680x1056,1280x720,1024x576,850x480,720x576,720x540,720x480, 720x404,704x576,640x480,640x360, auto

Second Stream:

1920x1080,1680x1056,1280x720,1024x576,850x480,720x576,720x540,720x480, 720x404,704x576,640x480,640x360, auto

Third Stream:

720x576,720x540,720x480,720x404,704x576,640x480, 640x300,352X288,320X240,320X180 auto.

Fourth Stream:

720x576,720x540,720x480,720x404,704x576,640x480,

640x300,352X288,320X240,320X180 auto.

- Bit-rate: 16kbps~12Mbps, CBR/VBR
- Video pre-processing: Noise reduction, Sharpen, Filtering

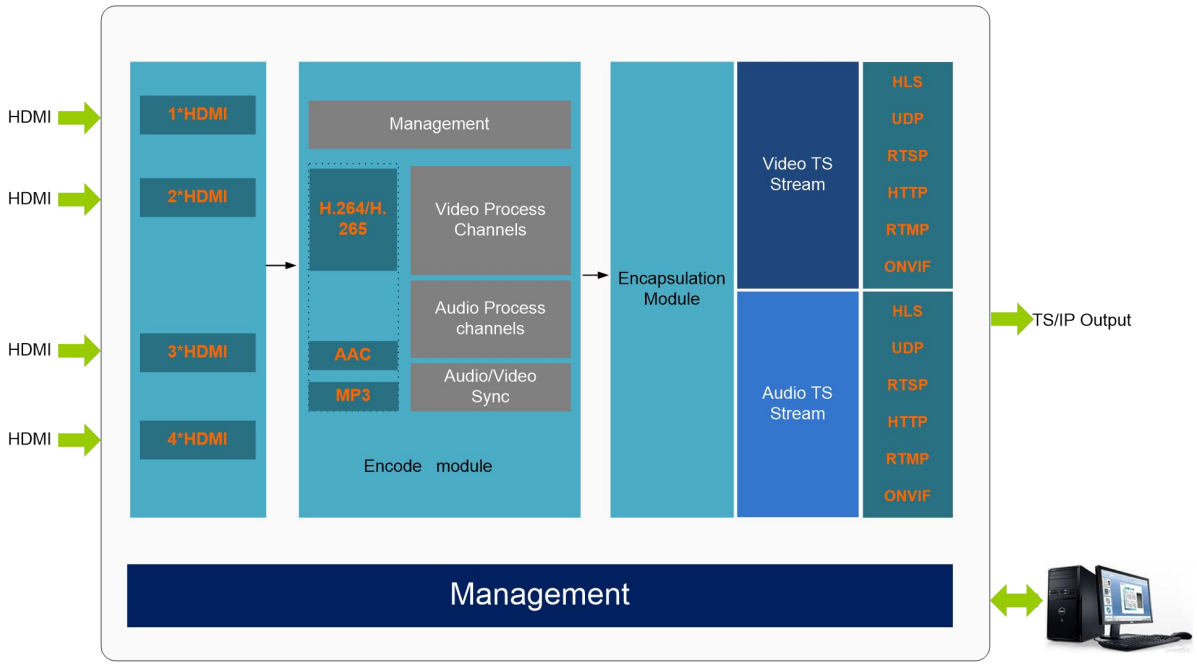
AUDIO Encoding

- Audio compression: AAC,AAC+,AAC++,MP3,MP2
- Audio input: HDMI embedded + 3.5mm
- Sampling accuracy: 24-bit
- Bit Rate: 48kbps~320kbps
- Sample-rate: 44.1KHz, 48KHz

IP Streaming output

- Transport protocol: TS over IP output, HLS, RTSP, HTTP, UDP and RTMP protocol
- Connector: RJ45, 1000M

1.4 Inner Function Principle



1.5 Appearance and Description

1.5.1 Front Panel Illustration

1	Power Supply
2	Ethernet interface
3	HDMI Interface *4
4	Audio 3.5mm Interface*2
5	Reset

1.6 Applications

- Internet TV HD Encoder
- Can be accessed NVR for DVR
- Digital signage HD stream server
- Video conference system video server

- Internet conferencing system video capture
- Replace HD video capture card
- Hotel TV System

Chapter 2 Installation Guide

2.1 Acquisition Check

When user open the package of the device, it is necessary to check items according to packing list. Normally it should include the following items:

- DMB-8904A-EC Classic ProVideo Streaming Encoder 1 PC
- Power Cord 1 PC
- 3.5mm Cable 2 PCS

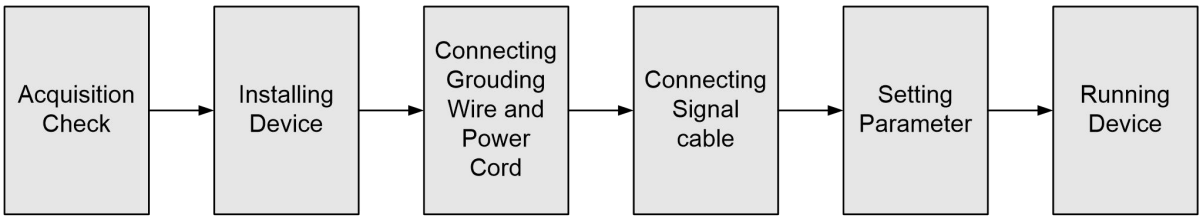
If any item is missing or mismatching with the list above, please contact the local manufacturer.

2.2 Installation Preparation

When user installs the device, please follow the steps below:

- Checking the possible device missing or damage during the transportation
- Preparing the relevant and correct environment for installation
- Installing DMB-8904A-EC 4 channels Real-Time HDMI Encoder
- Connecting communication port (if it is necessary)

2.2.1 Device's Installation Flow Chart Illustrated as following:



2.2.2 Environment Requirement

Item	Requirement
Machine Hall Space	When user installs machine frame array in one machine hall, the distance between 2 rows of machine frames should be 1.2~1.5m and the distance against wall should be no less than 0.8m.
Machine Hall Floor	Electric Isolation, Dust Free Volume resistivity of ground anti-static material: $1X10^{7}$~$1X10^{10}\Omega$, Grounding current limiting resistance: 1MΩ (Floor bearing should be greater than 450Kg/㎡)
Environment Temperature	5~40℃(sustainable)，0~45℃(short time)， installing air-conditioning is recommended
Relative Humidity	20%~80% sustainable 10%~90% short time
Pressure	86~105Kpa
Door & Window	Installing rubber strip for sealing door-gaps and dual level glasses for window
Wall	It can be covered with wallpaper, or brightness less paint.
Fire Protection	Fire alarm system and extinguisher
Power	Requiring device power, air-conditioning power and lighting power are independent to each other. Device power requires DC 12V. Please carefully check before running.

2.2.3 Grounding Requirement

- All function modules' good grounding designs are the basis of reliability and stability of devices. Also, they are the most important guarantee of lightning arresting and interference rejection. Therefore, the system must follow this rule.
- Grounding conductor must adopt copper conductor in order to reduce high frequency impedance, and the grounding wire must be as thick and short as possible.
- Users should make sure the 2 ends of grounding wire well electric conducted and be antirust.
- It is prohibited to use any other device as part of grounding electric circuit
- The area of the conduction between grounding wire and device's frame should be no less than 25mm^2.

2.2.4 Frame Grounding

All the machine frames should be connected with protective copper strip. The grounding wire should be as short as possible and avoid circling. The area of the conduction between grounding wire and grounding strip should be no less than 25mm^2.

2.2.5 Device Grounding

Connecting the device's grounding rod to frame's grounding pole with copper wire.

2.3 Wire's Connection

The power switch is located at the left of the front panel, and the power socket and grounding pole is located at the right end of the rear panel, whose order goes like this, power socket and grounding pole, and users can refer 1.4 for details.

- Connecting Power Cord

  User can insert one end into power supply socket, while insert the other end to AC power.

- Connecting Grounding Wire

  When the device solely connects to protective ground, it should adopt independent way, say, share the same ground with other devices. When the device adopts united way, the grounding resistance should be smaller than 1Ω.

Caution:

Before connecting power cord to DMB-8904A-EC 4 channels Real-Time HDMI Encoder, user should set the power switch to "OFF".

2.4 Signal Line Connection

Before operating, user should connect all devices requiring cables.

Chapter 3 WEB Operation

User not only can use front buttons to set configuration, but also can control and set the configuration in computer by connecting the device to web NMS Port. User should ensure that the computer's IP address is different from the DMB-8904A-EC's IP address; otherwise, it would cause IP conflict.

3.1 Login

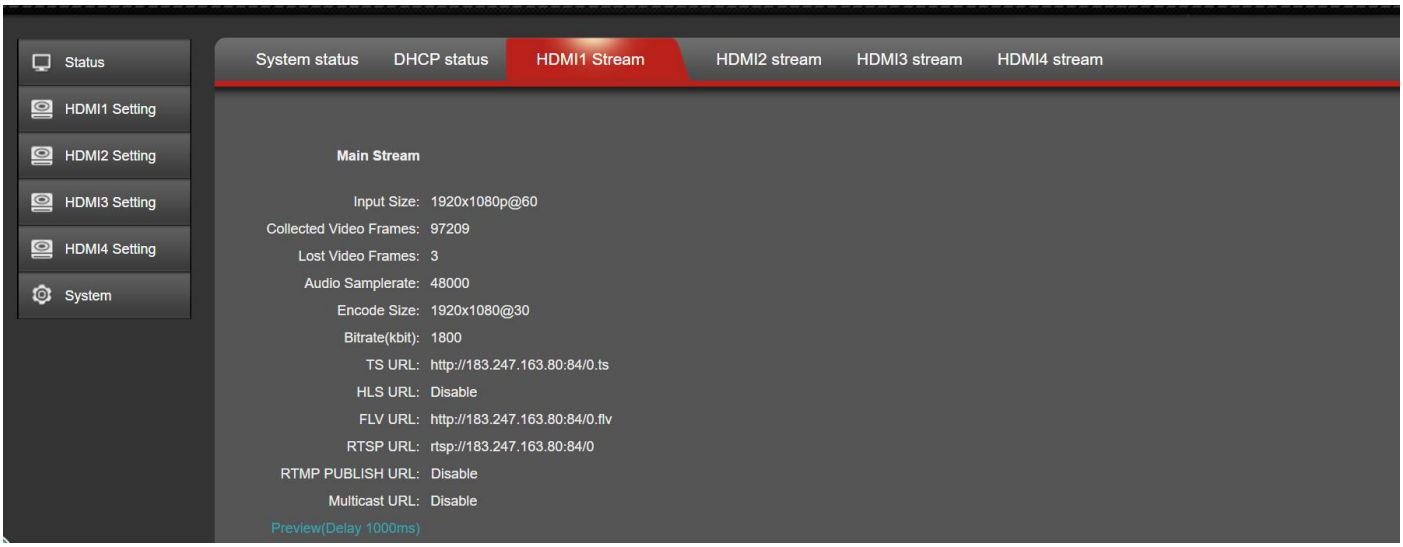
When proceed the setting of WEB interface configuration, user need to modify computer's IP 192.168.1. *, the factory default IP of DMB-8904A-EC is: 192.168.1.168

Reset Initialization: the panel has the RST, used for DMB-8904A-EC initial reset, under the power-on situation, press & hold it for 10s, it will be restarted automatically, so the parameters will be initialization. After the IP initialized, 192.168.1.168.

1. Set computer's IP address: 192.168.1. *, Note: * except 168, can select any one of them from 0-254.

2. Open IE, input 192. 168. 1. 168, enter WEB interface, **Users' name**: admin; **Password**: admin.

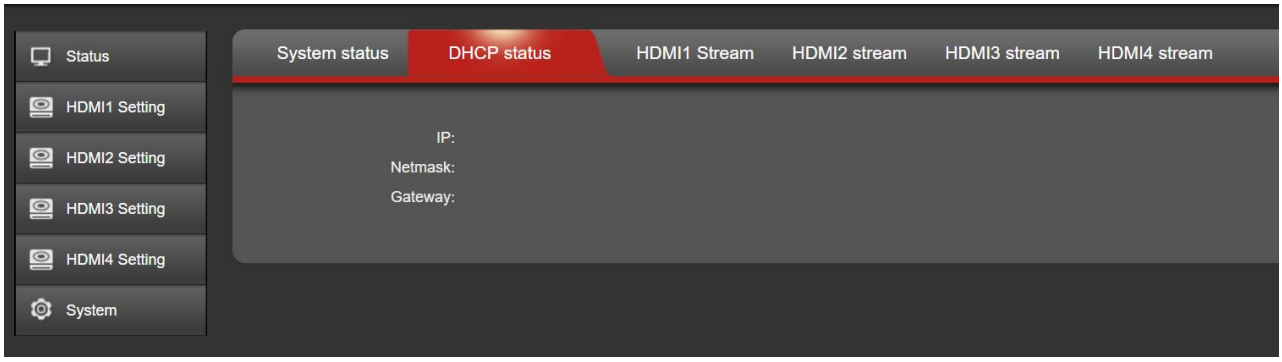
3.2 Status Display



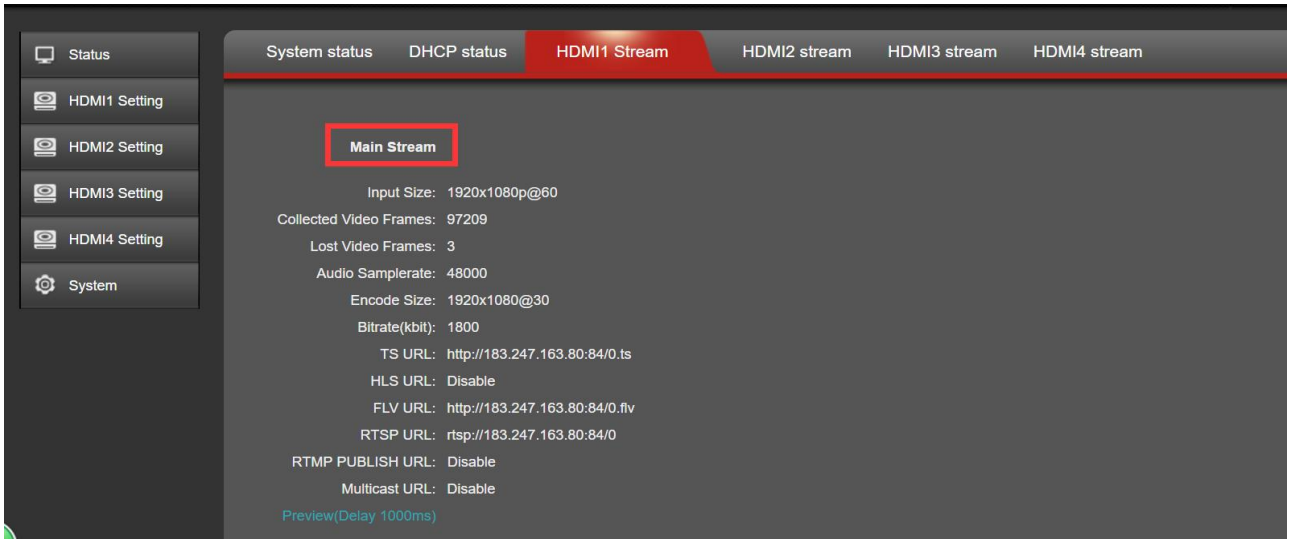
1. Hardware status: if "collected video frames" increasing, it shows that it has video input;
   If display for '0', it shows that it has no video inputs, user need to check the input signals.

   NOTE： If it encoding normally, the "collected video frames "will produce the updated data; If no data updated, please check your video cable & video source works normally or not.

2. DHCP: If enable the DHCP, display as below
   If disable the DHCP, DHCP status is empty, no information

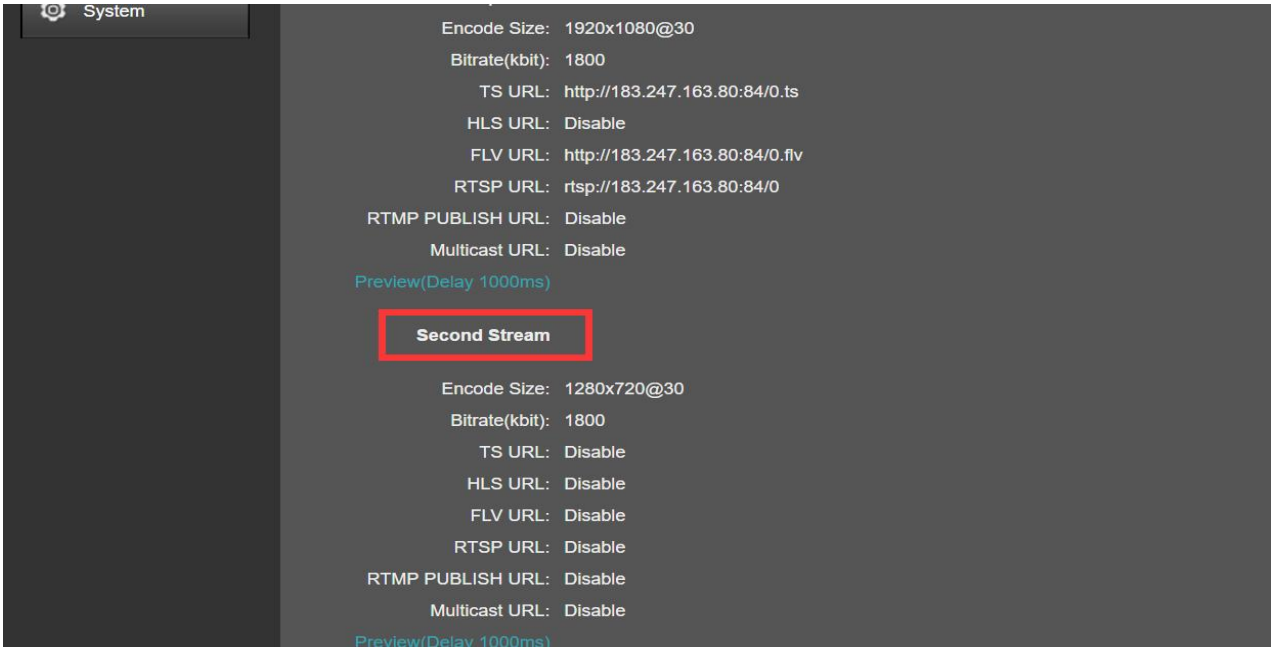


3. Main Stream of each Channel: main stream status

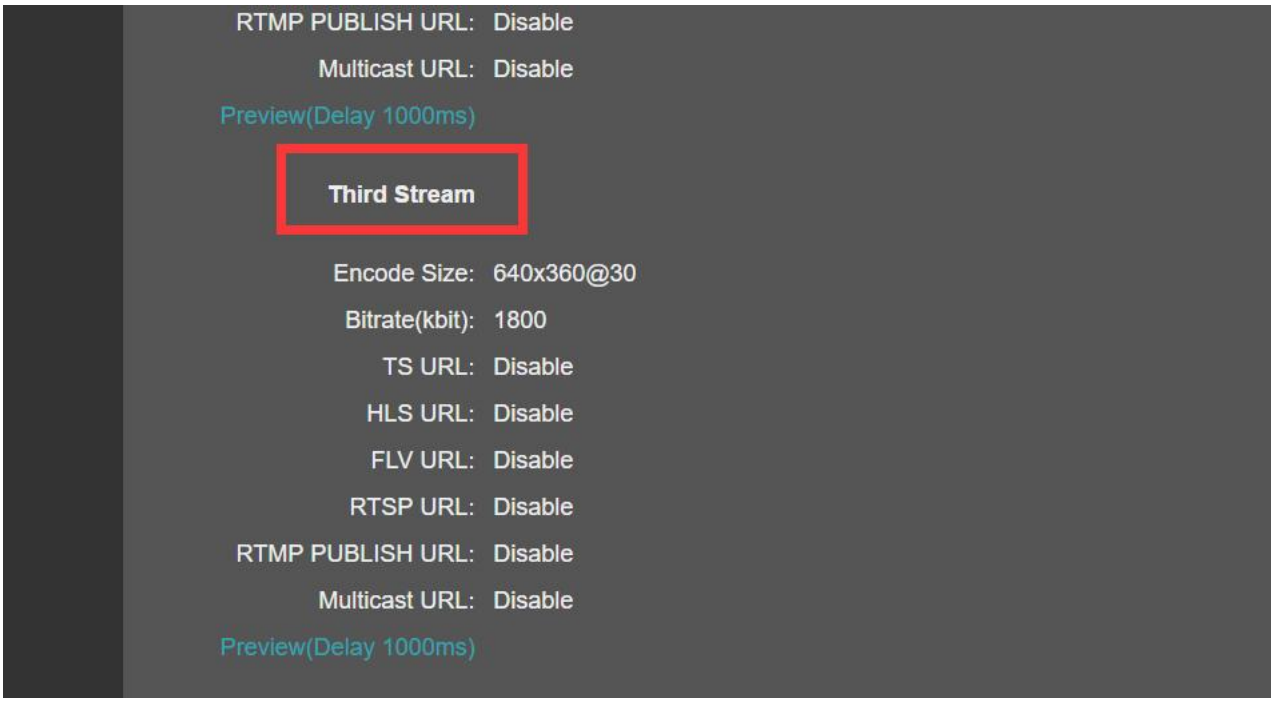


Click “Preview” for preview the streaming

4. Second Stream of each Channel: second stream status

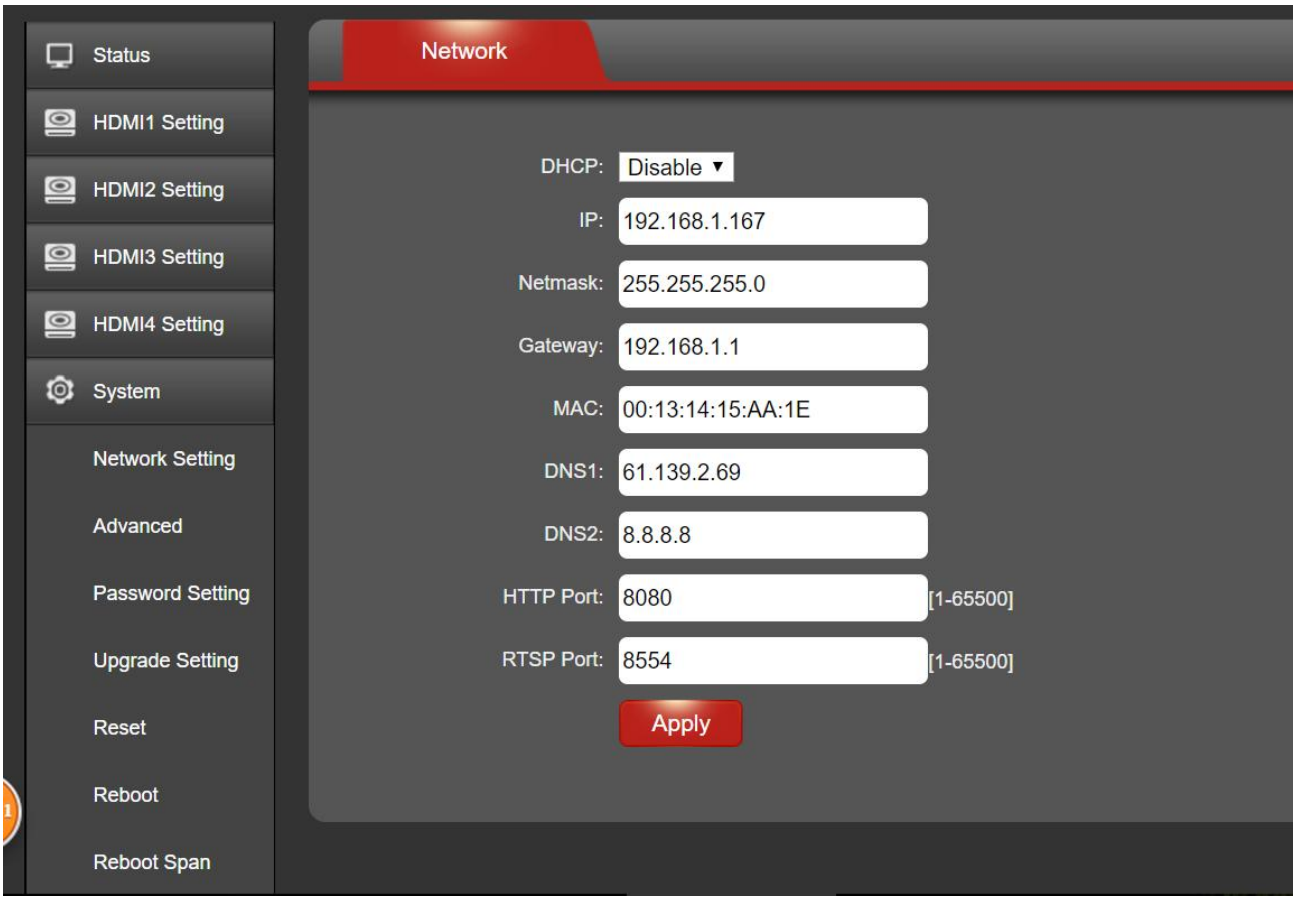


5. Third Stream of each Channel: third stream status



6. Fourth Stream of each Channel: fourth stream status

3.3 Network Setting

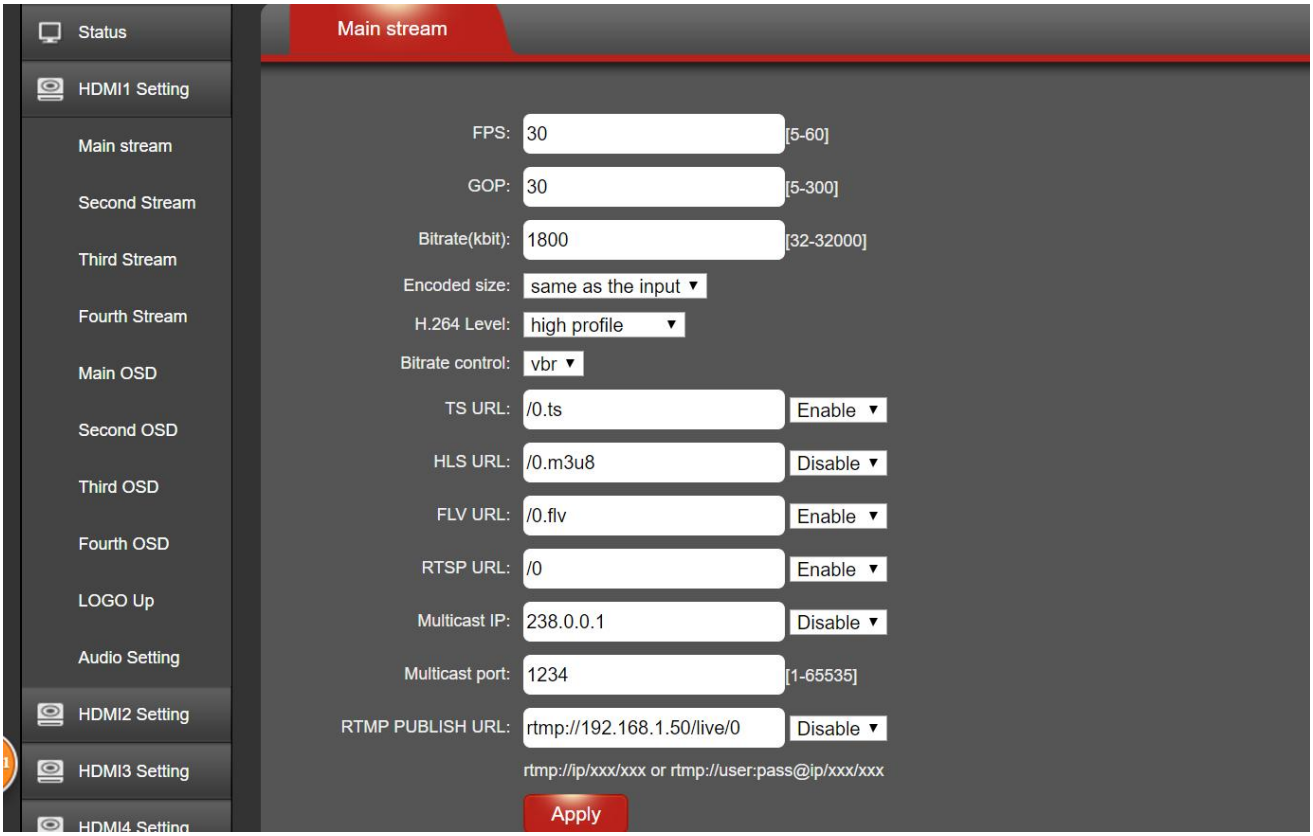


Note: the Device IP address: factory default: 192.168.1.168, if user modified it, and forget the IP address, under the power-on situation, user can press the reset button for 10s, then restart it to restore factory default.

3.4 HDMI Encoding Setting

3.4.1 HDMI main Stream Setting

Video & Audio parameters' settings.



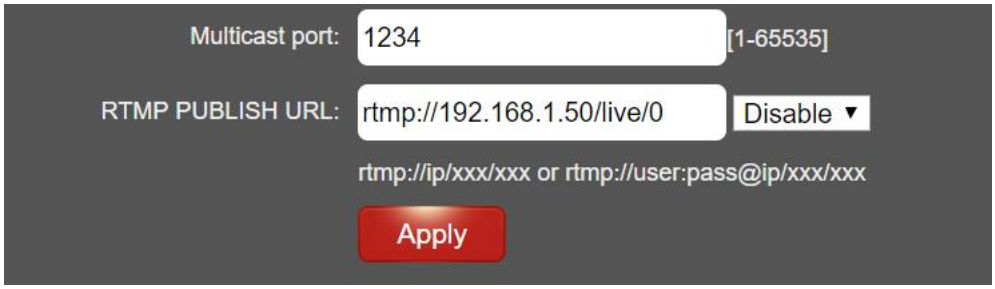
HDMI Main Stream Editing Operation

1. The setting for H.264 Encoding parameter: including H.264 Level, Frame rate, bitrate control and so on.
2. Each HDMI input support 4 streaming output, each streaming output support HTTP/RTMP/RTSP/HLS/UDP output at the same time, but since the CPU capacity of encoder is fixed, please don't use them at the time same, please close the other protocol you don't use to save the capacity.
3. PS: When the Main Stream set up 1080P@30fps, please close other streams.

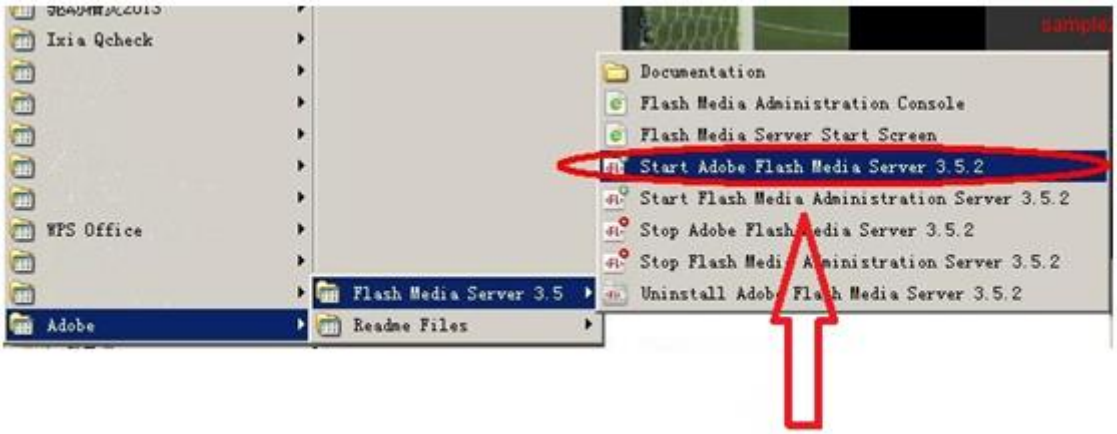
4. If use RTMP protocol, you need to input your server's IP address, port, app name and stream name.

Note: For the Ustream Server Setting Explanation
E.g:
URL: 1.3433929.fme.ustream.tv/ustreamVideo/1234567/key
Stream: rtmp:// 1.3433929.fme.ustream.tv/ustreamVideo/1234567/key/
oX0rTdnXe6Kp2PkBt9XGdn22tXAKIdX7

Fill out above URL address to RTMP Publish URL: Such as below:

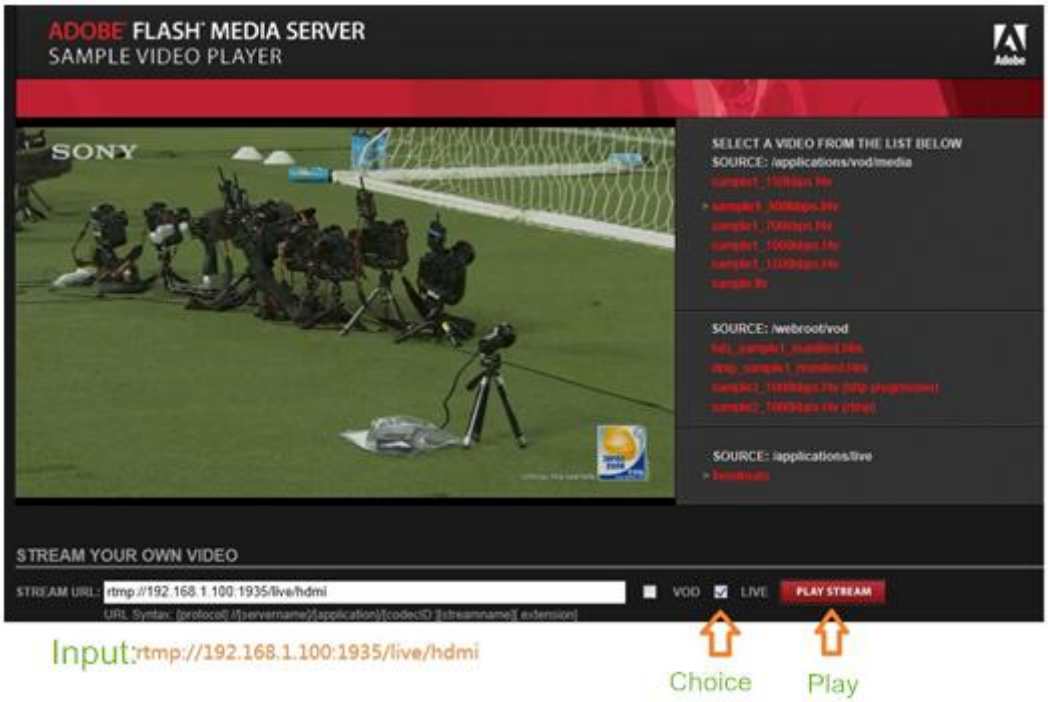


Below is Adobe Flash Media Server setting for users' reference
1. Install Software: Flash+Media+Server3.5, during installation process, don't need to input Serial Number, User name and password.
2. Enable Backstage Software:

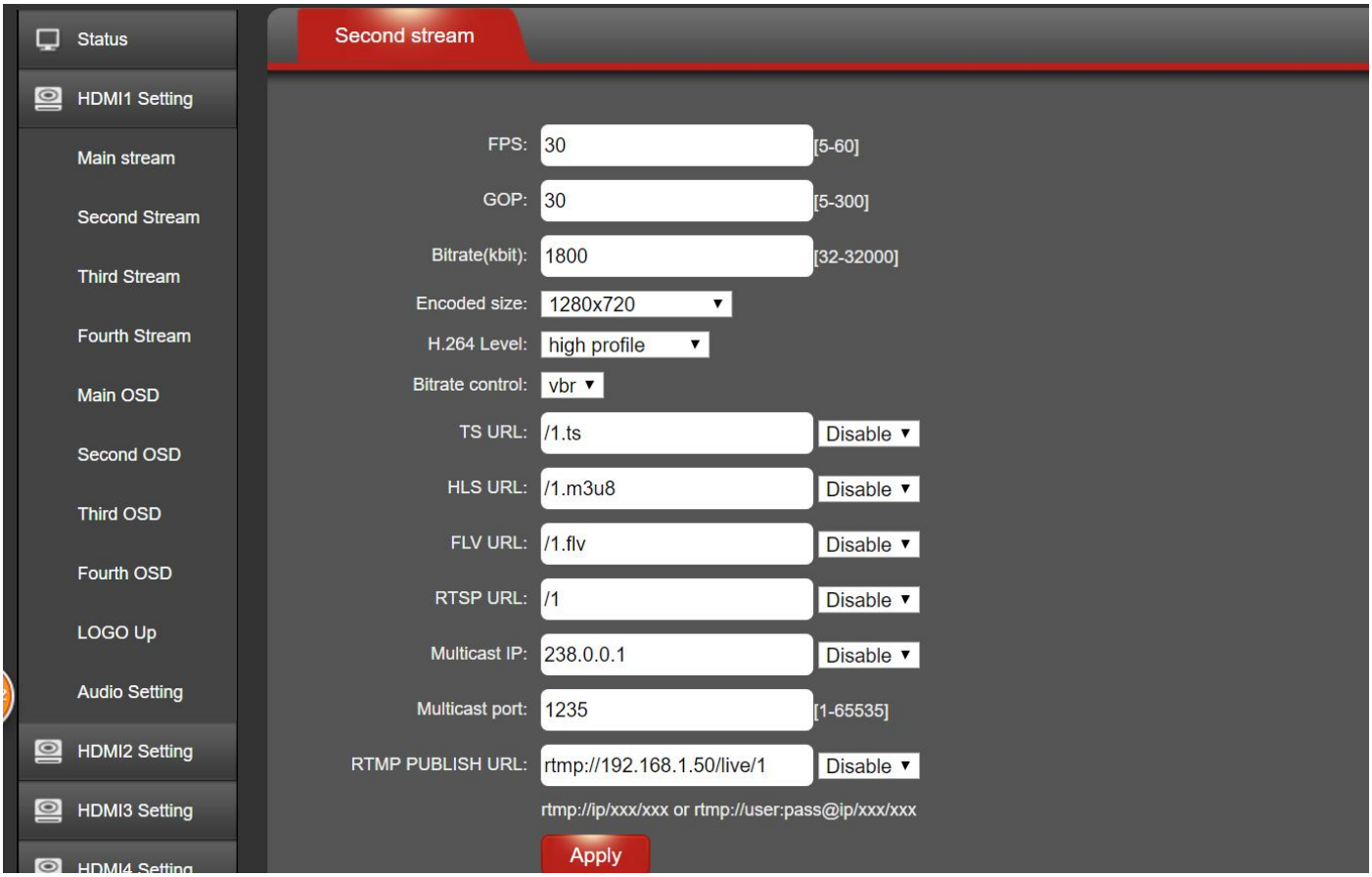


Note: This software is running at the backstage.

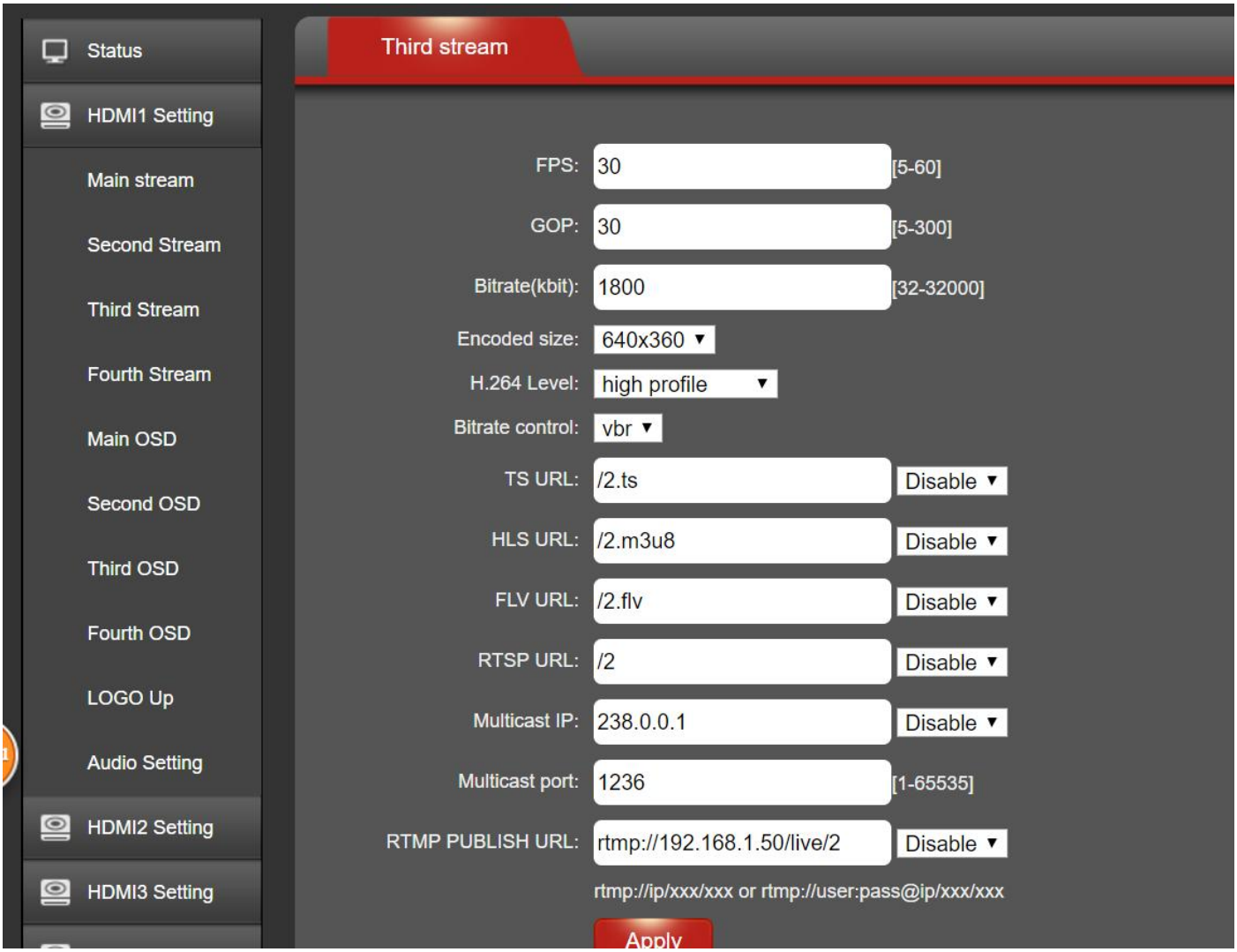
3. Open the Folder Flash Player: VideoPlayer.html
4. Input rtmp://ip address/rtmp/hdmi, then choose live, so you can see picture or input rtmp://192.168.1.100:1935/live/dtvane, select LIVE, click Play stream



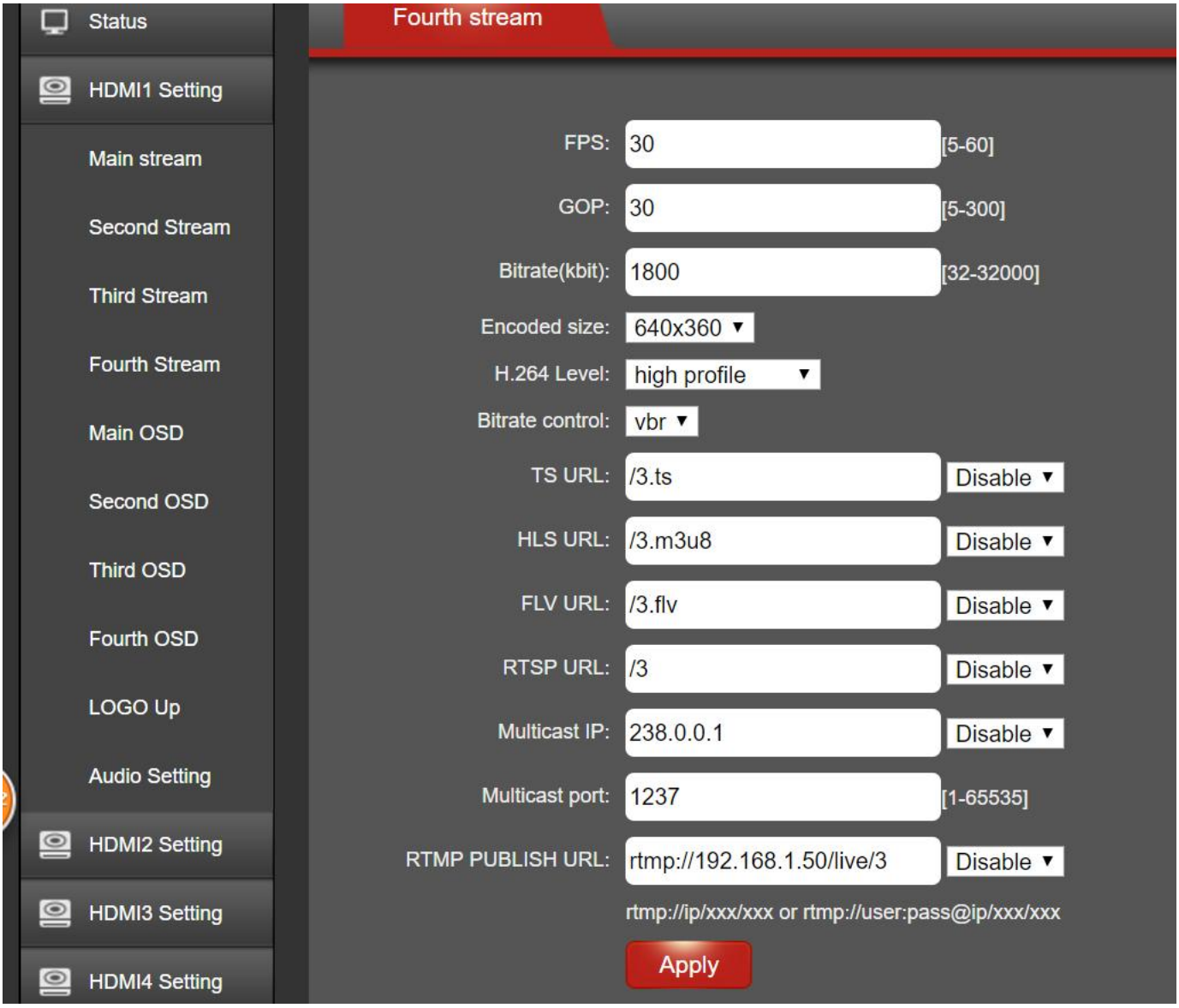
3.4.2 HDMI Second Stream Setting



3.4.3 Third Stream Setting

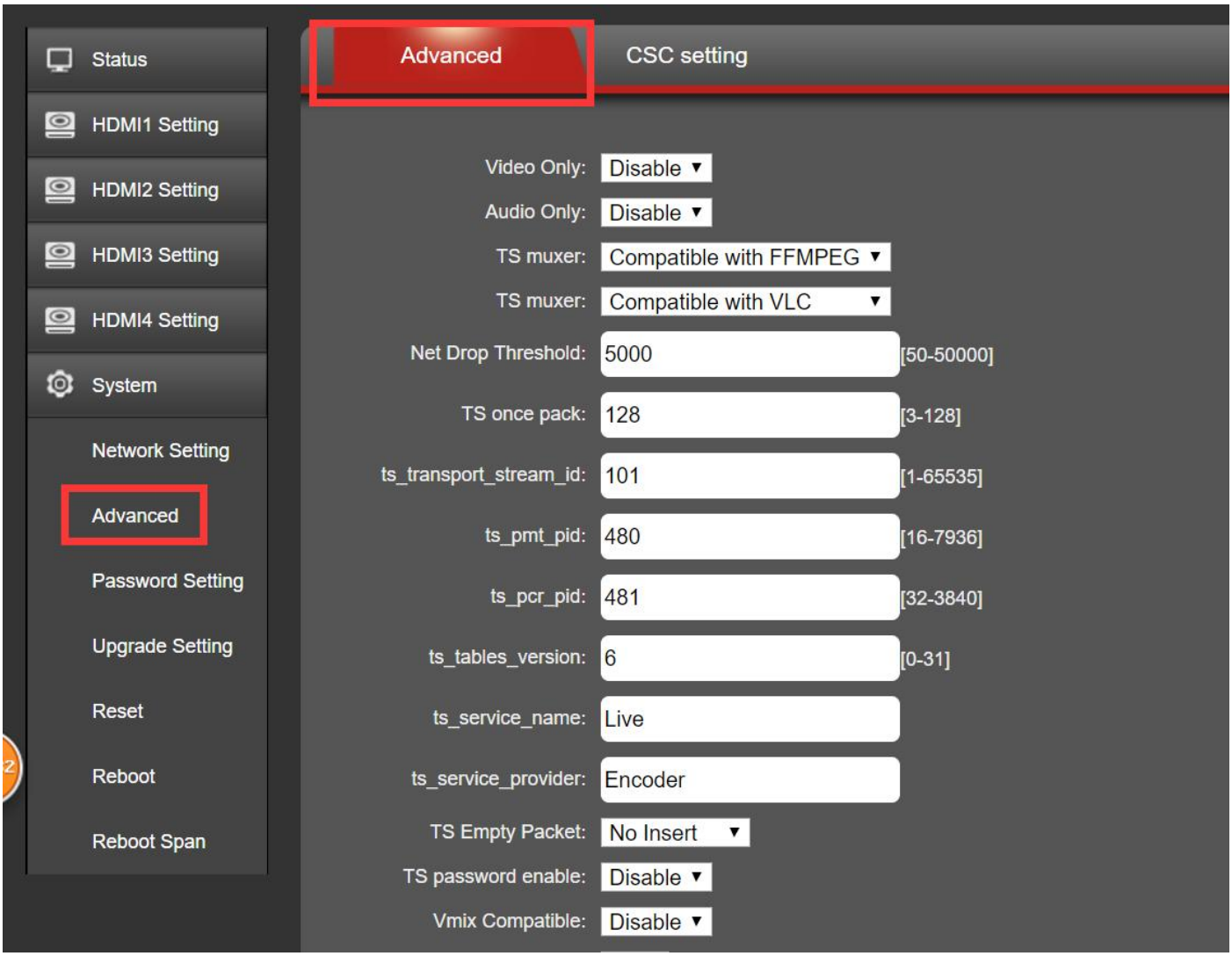


3.4.4 Fourth Stream Setting

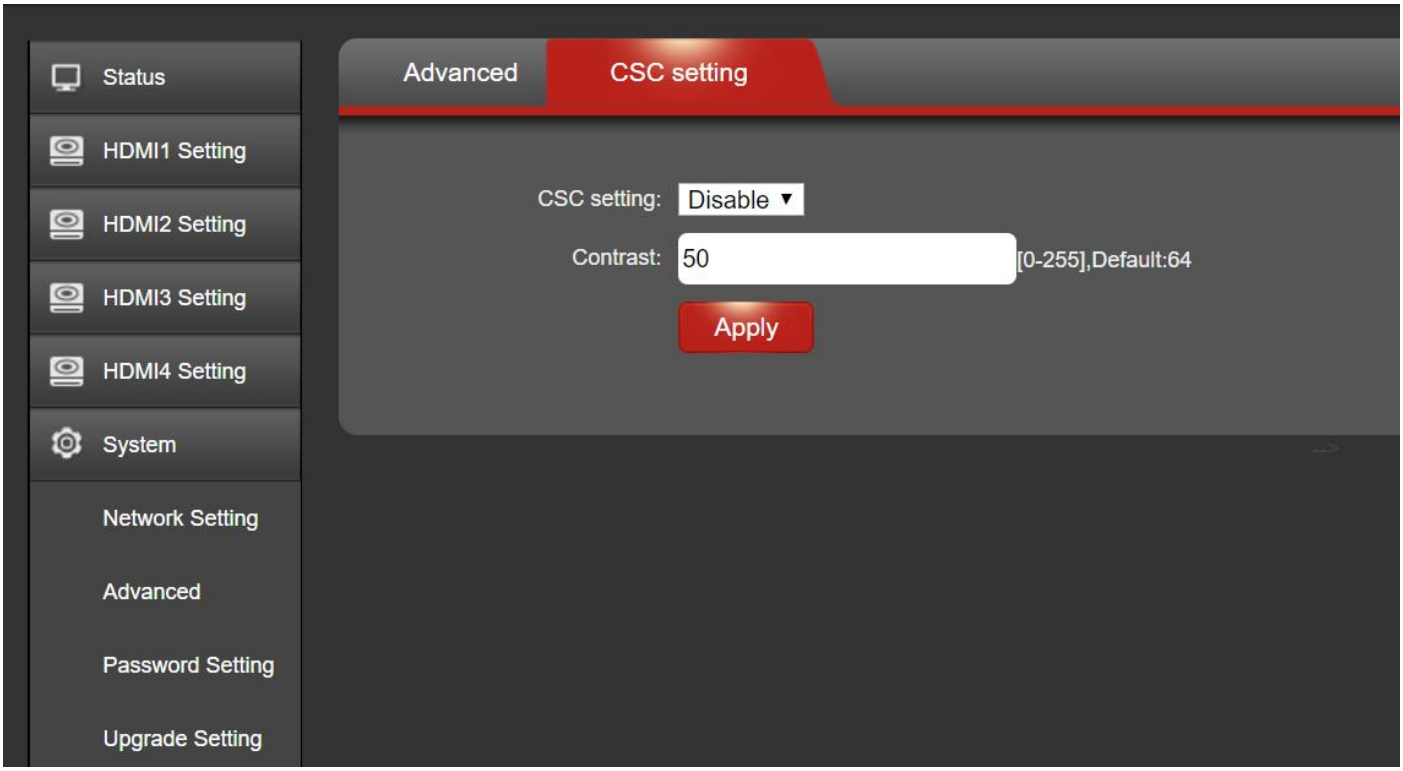


3.5 Extended Setting

3.5.1 Advanced

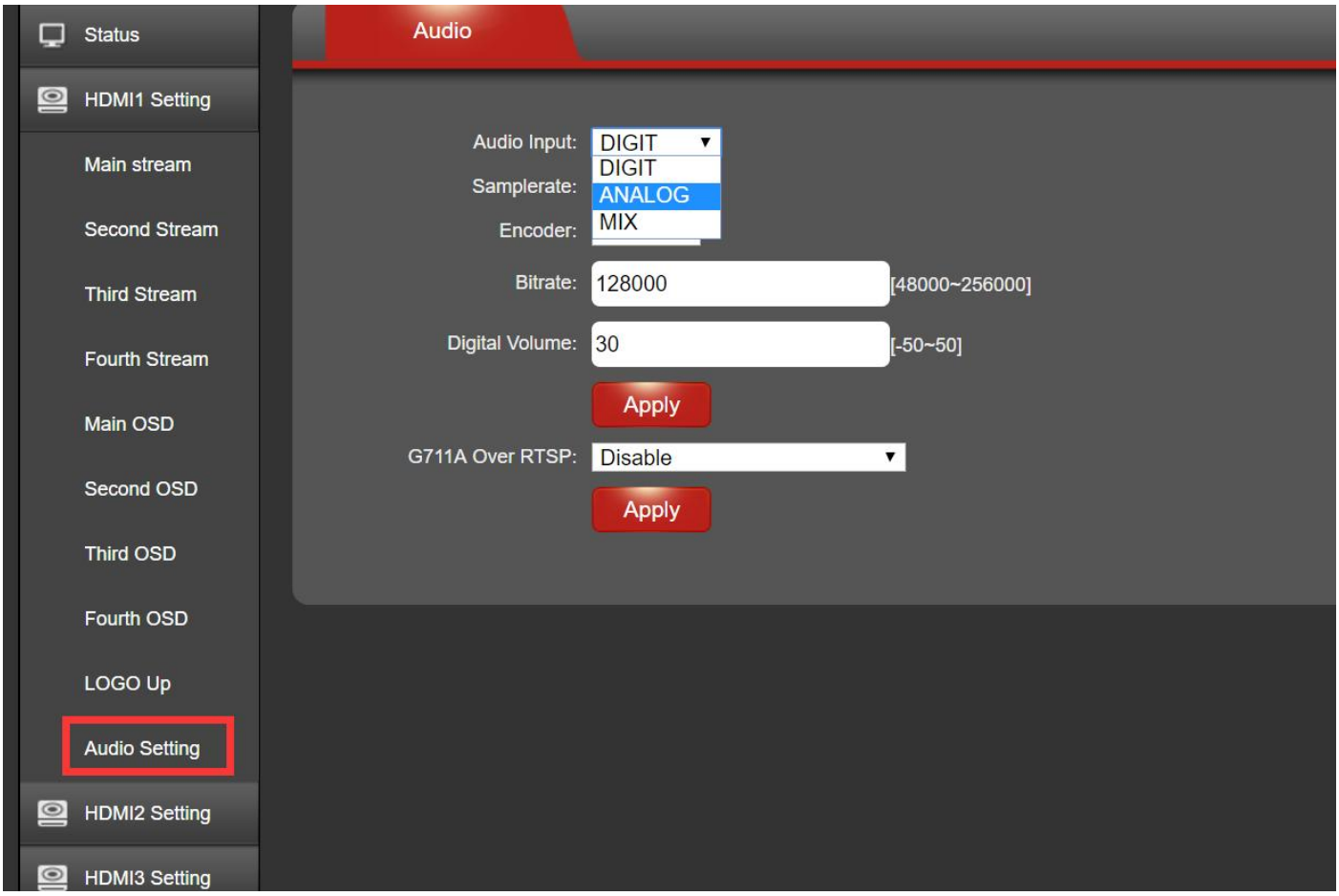


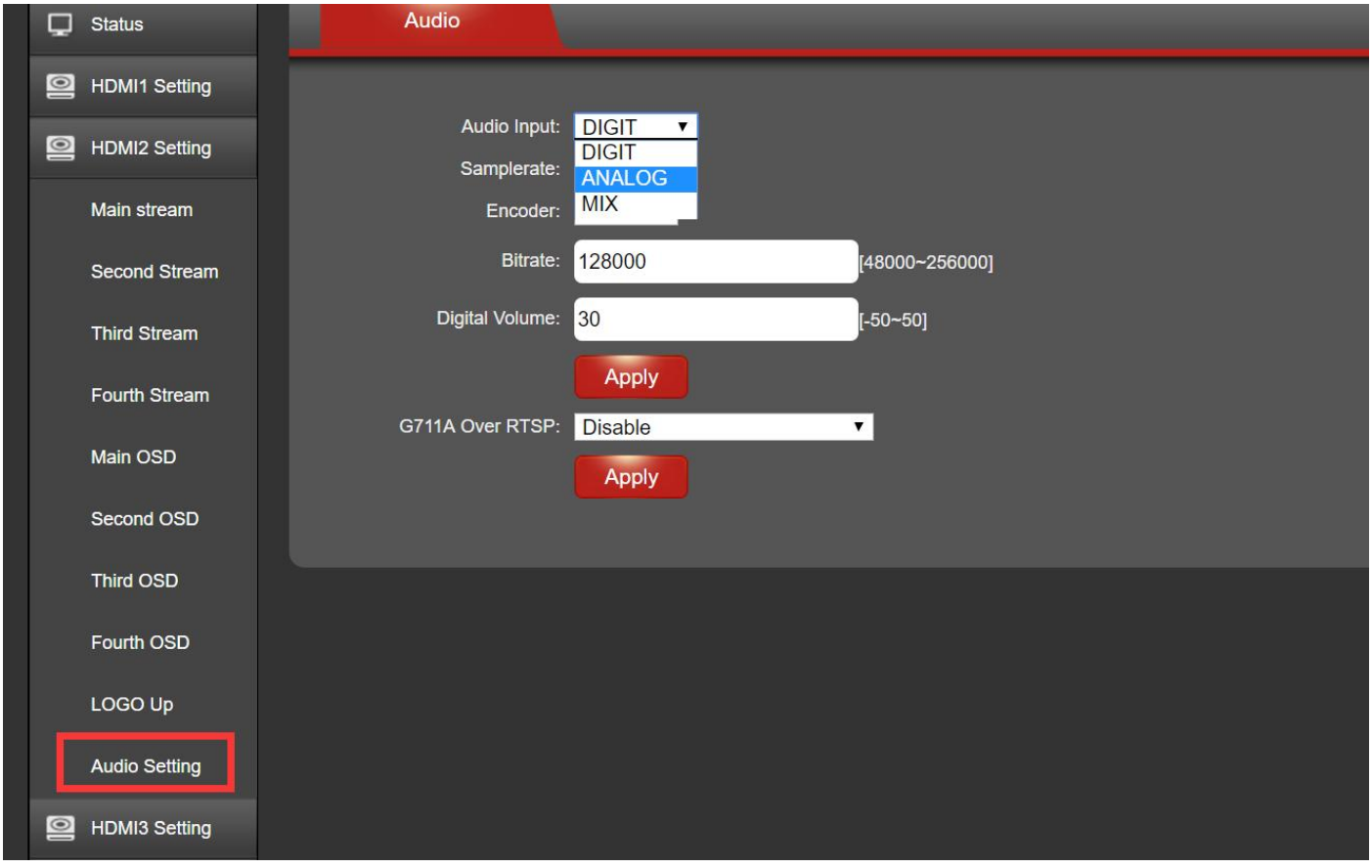
3.5.2 CSC Setting



CSC setting for Adjusting Contrast, default 64

3.6 Audio Setting



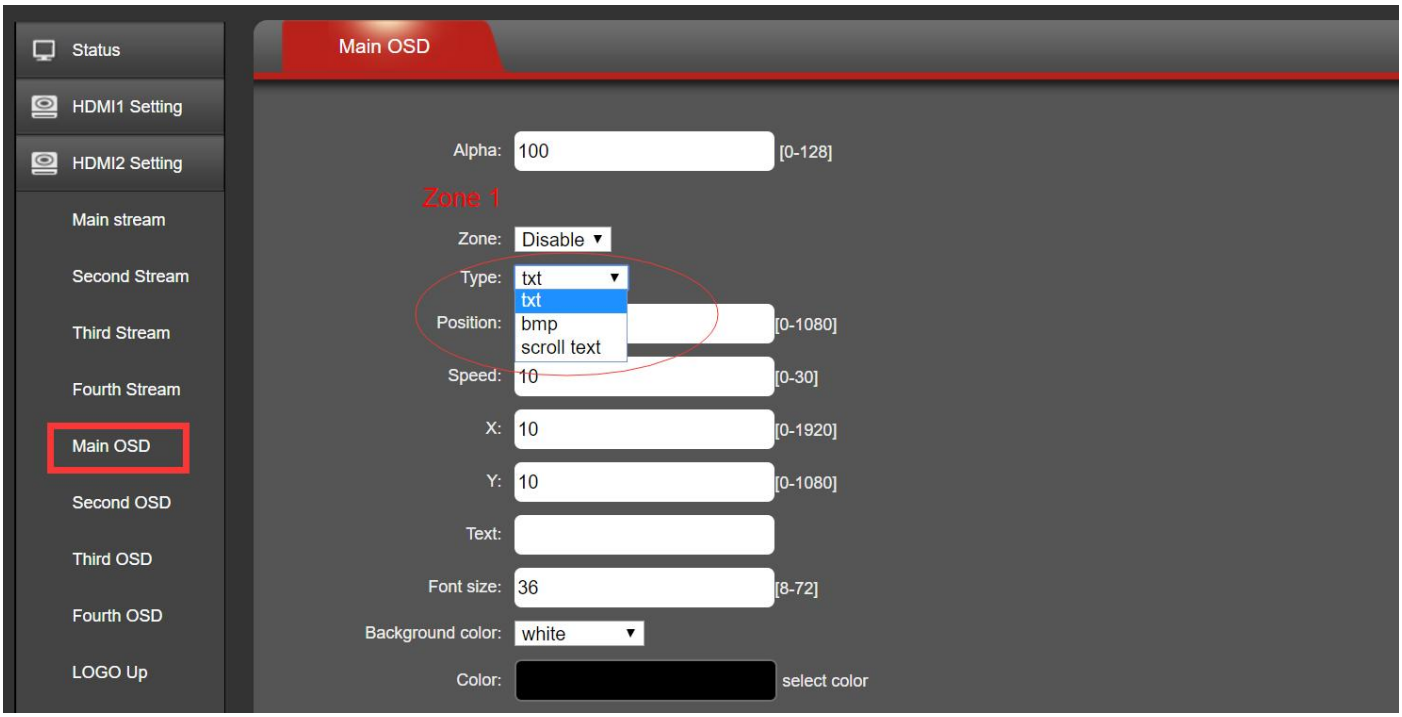


Note： 2*Jack Audio input configure in “HDMI1 Setting” and “HDMI2 Setting”.

This page, user can set audio encoding, including bitrate, audio bitrate and so on.

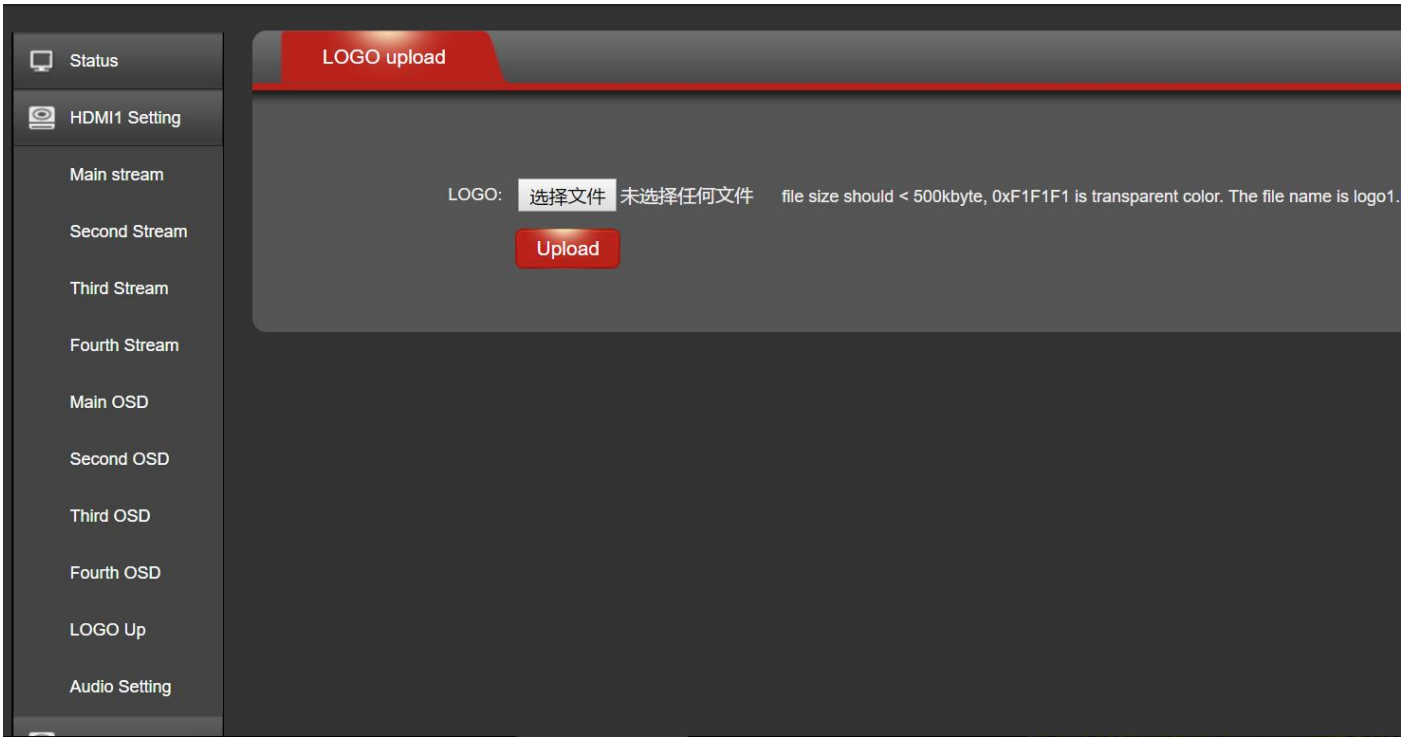
3.7 OSD Setting

Main/Second/Third/Fourth Streaming, each streaming support 4 LOGO in 4 Zone



Logo type support TXT,bmp,scroll text option
Color option

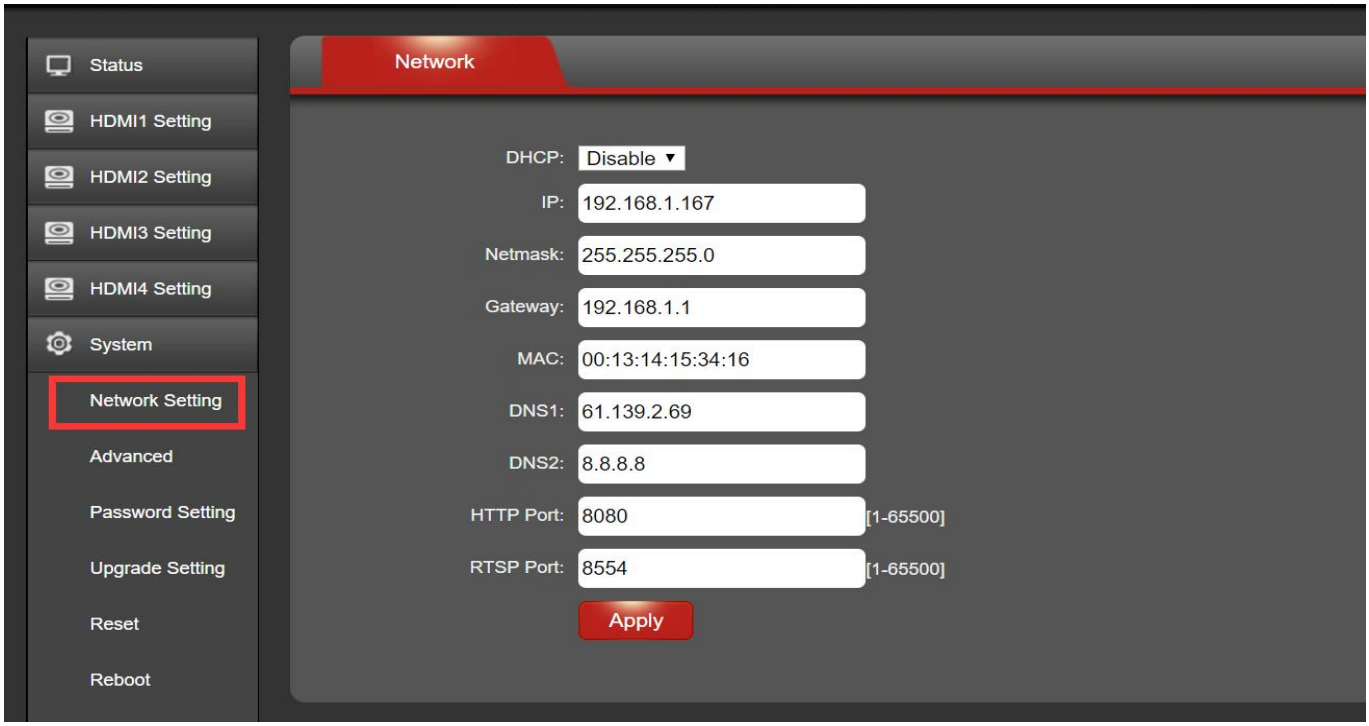
3.8 LOGO UPLOAD



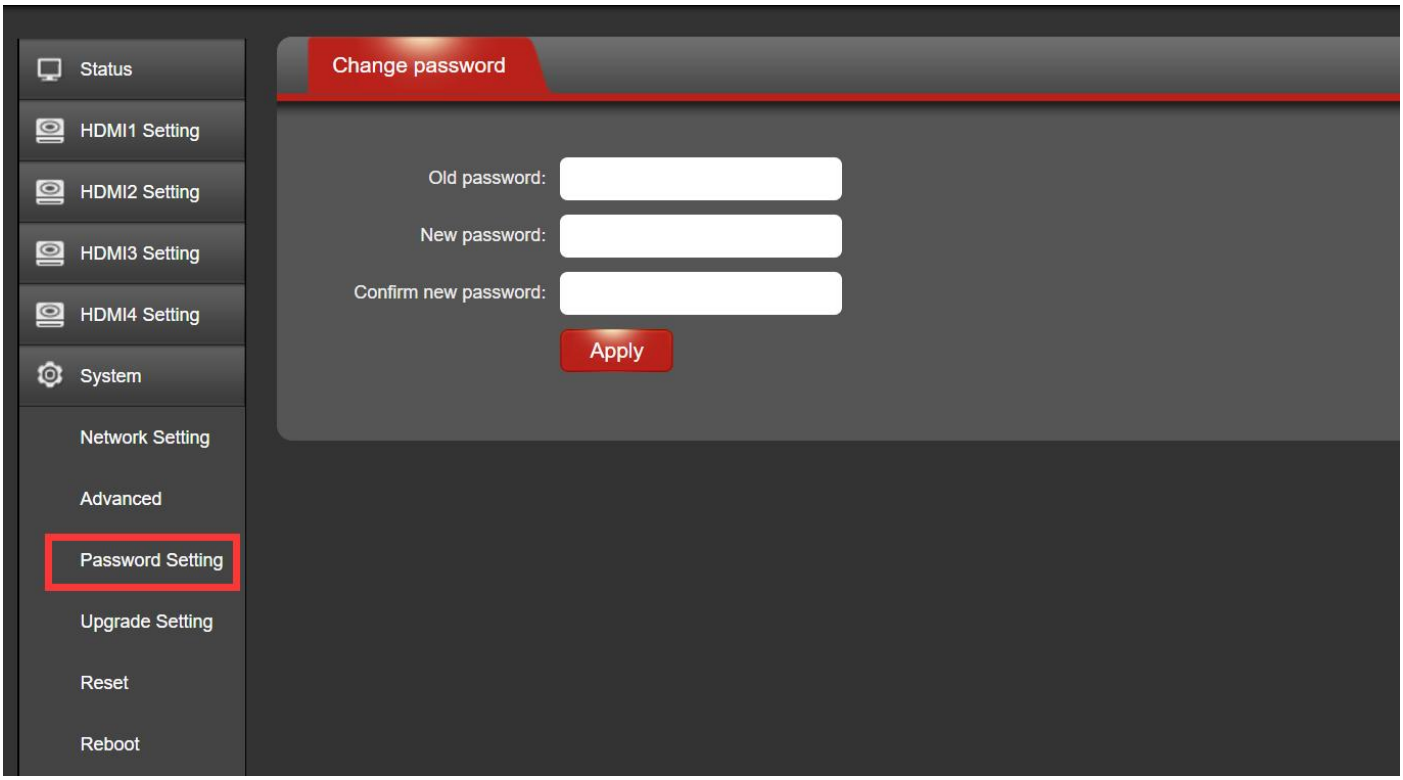
Please pay attention: logo file name only can be logo.bmp

3.9 System Setting

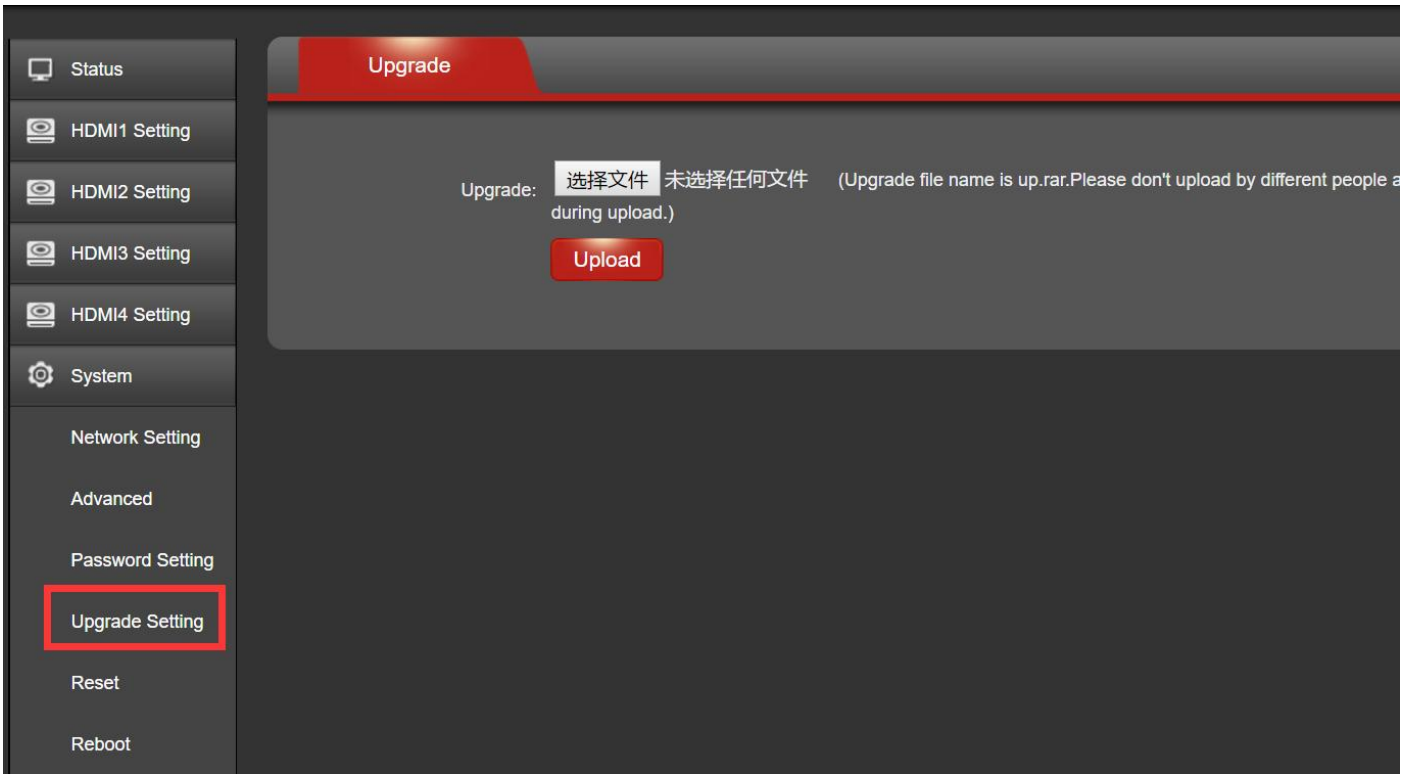
3.9.1 Network Setting



3.9.2 Password Setting

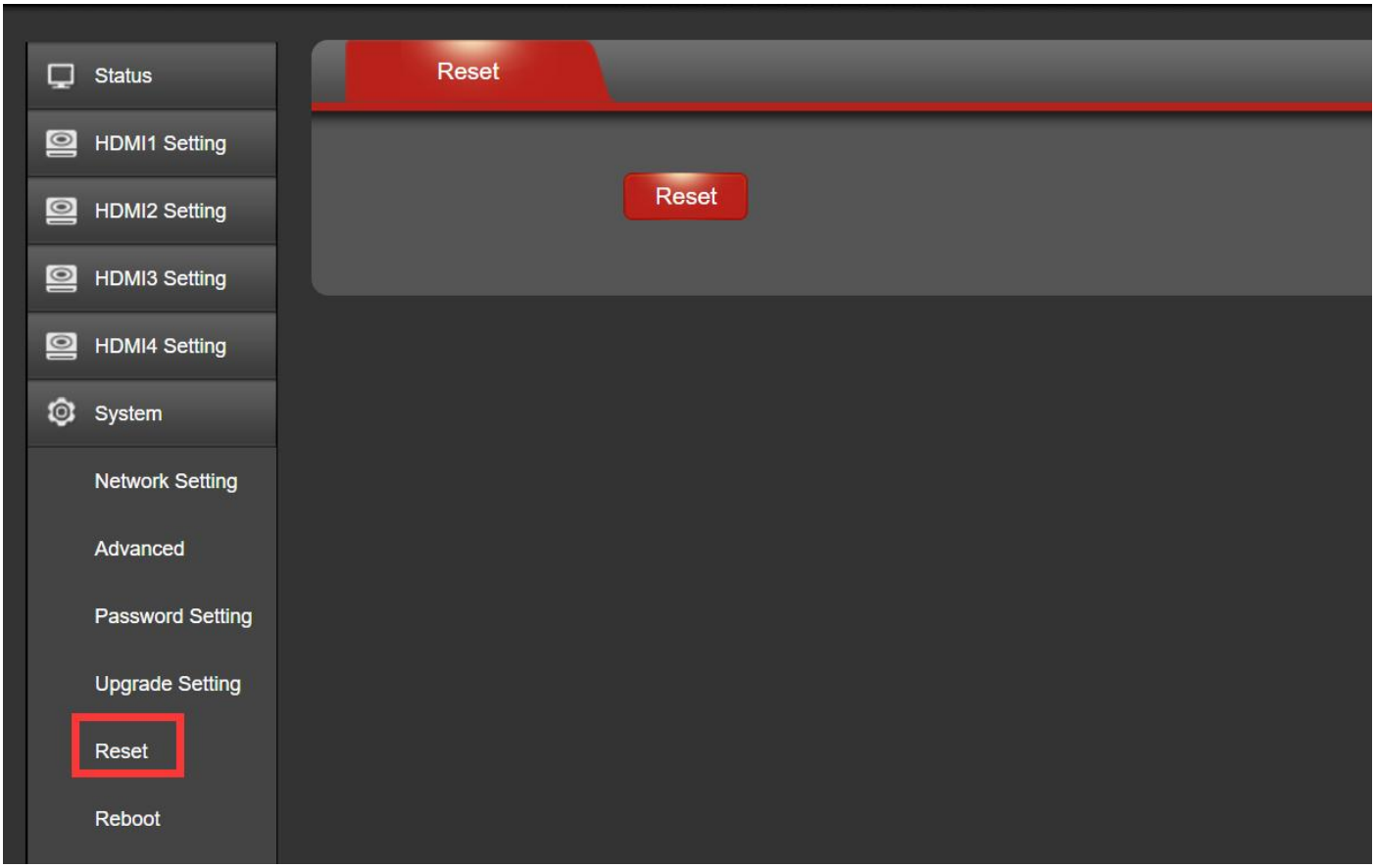


3.9.3 Upgrade Setting

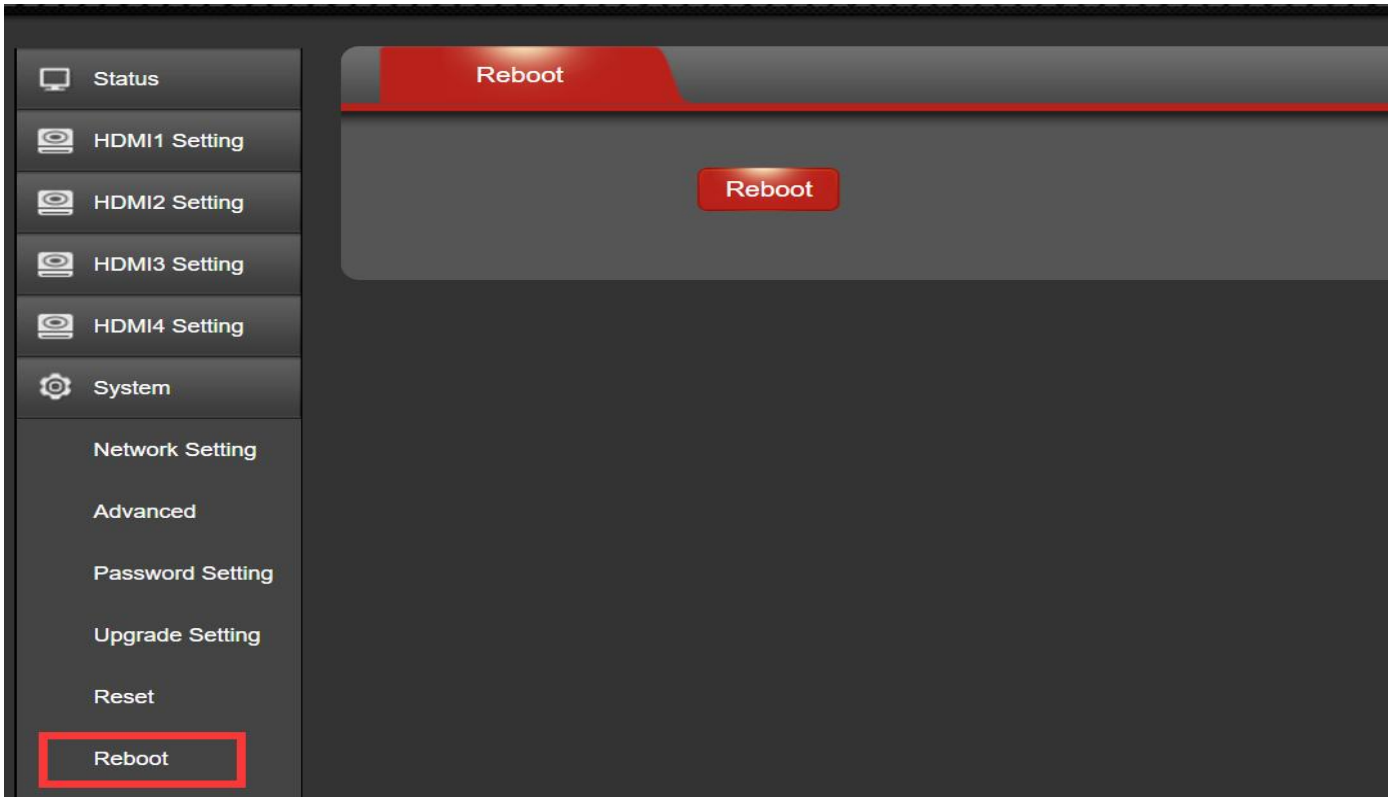


Note: For upgrade settings, please use the upgrade package that provided by our technique staff, don't attempt upgrading by self.

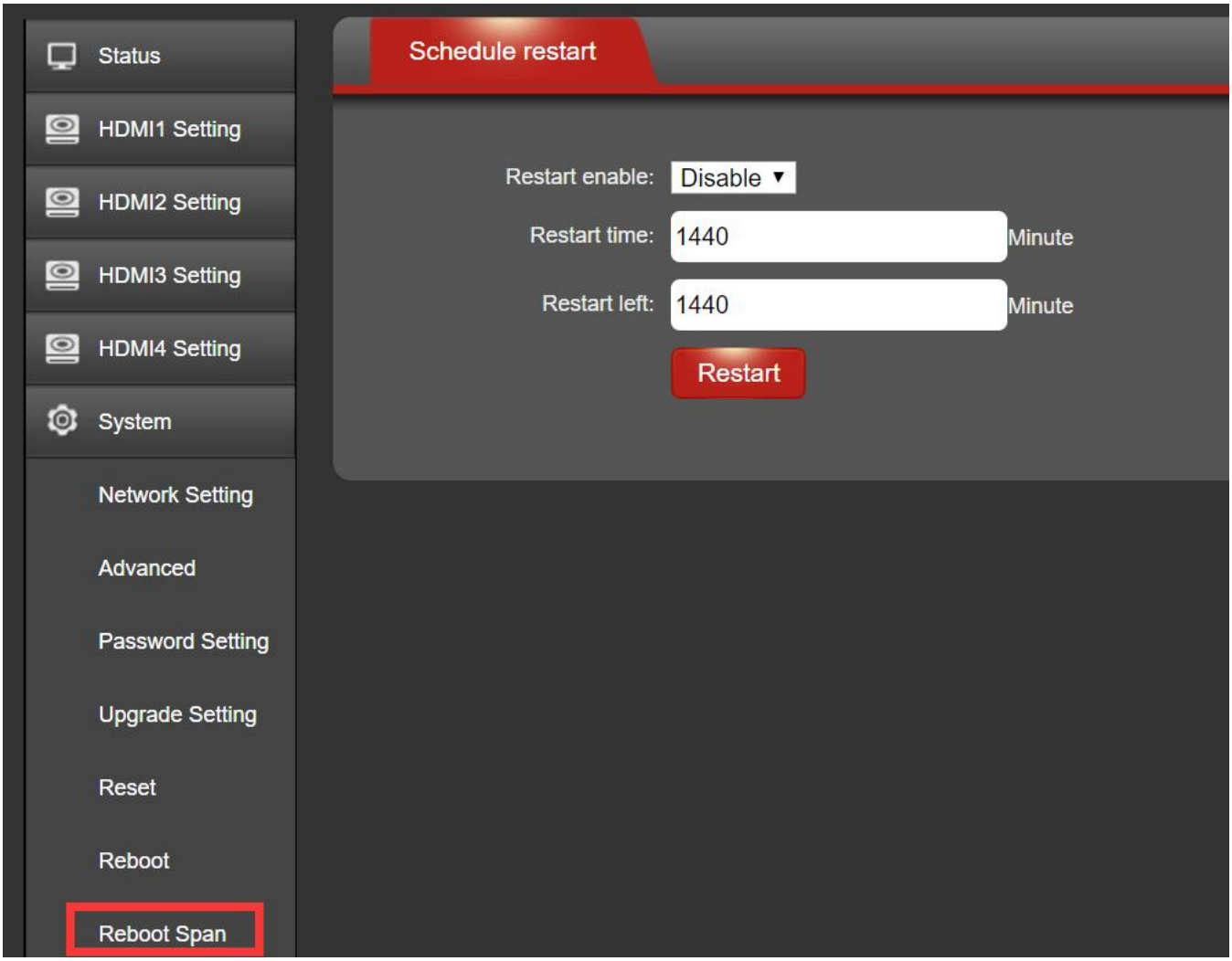
3.9.4 Reset



3.9.5 Reboot

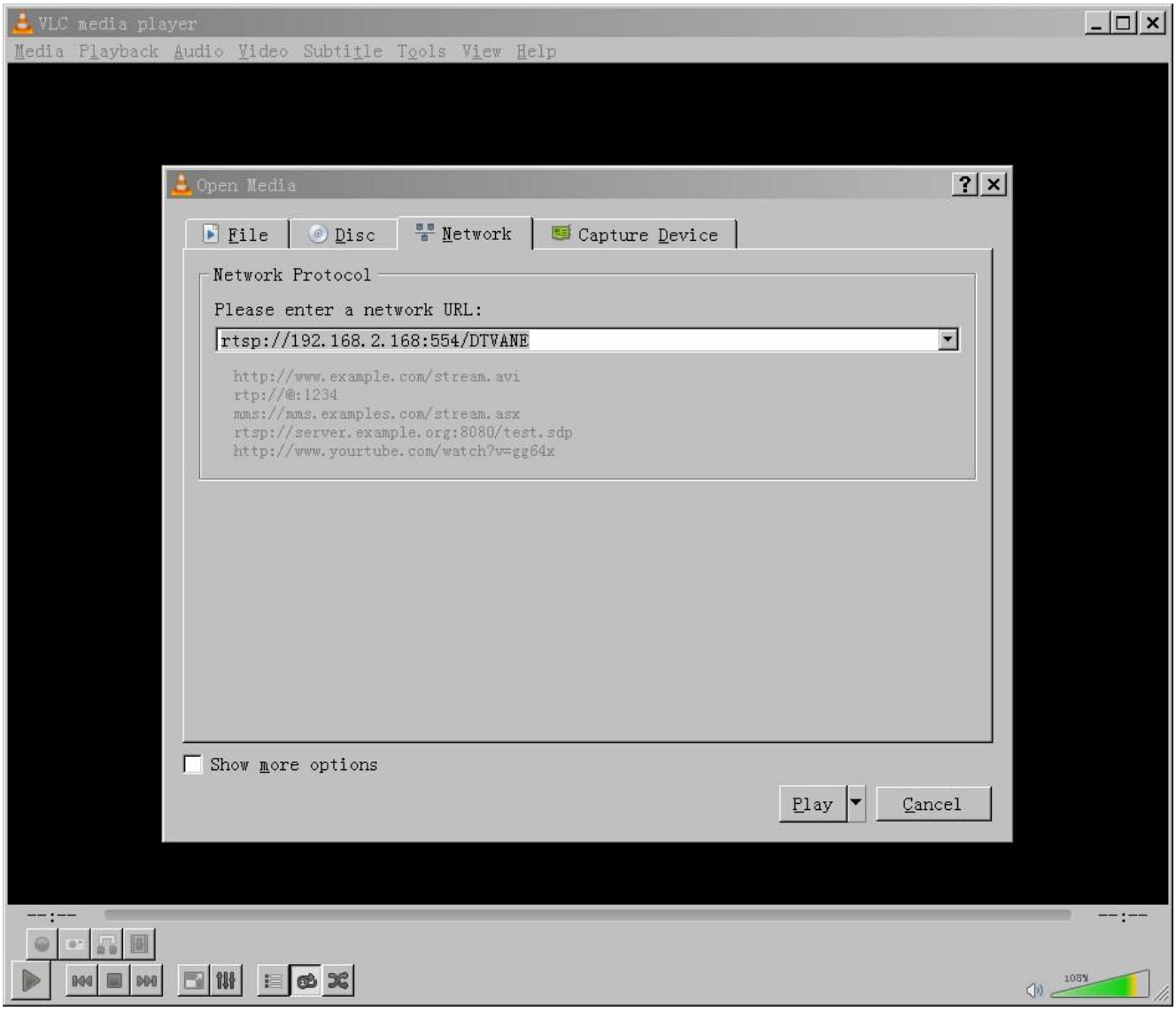


3.9.6 Reboot Span



Set the reboot span time, the encoder will auto reboot at your scheduled time

3.9.7 VLC Decoding Configuration



Input the Access address of Status, then click ‘Play’ button, the using VLC’s PC need to keep for the same network segment with the encoder.

Chapter 4 Troubleshooting

DIGICAST's ISO9001 quality assurance system has been approved by CQC organization. For guarantee the products' quality, reliability and stability. All DIGICAST products have been passed the testing and inspection before ship out factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by DIGICAST. To prevent potential hazard, please strictly follow the operation conditions.

Prevention Measure

- Installing the device at the place in which environment temperature between 0 to 45 °C
- Making sure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Checking the input AC within the power supply working range and the connection is correct before switching on device
- Checking the RF output level varies within tolerant range if it is necessary
- Checking all signal cables have been properly connected
- Frequently switching on/off device is prohibited; the interval between every switching on/off must greater than 10 seconds

Conditions need to unplug power cord

- Power cord or socket damaged
- Any liquid flowed into device
- Any stuff causes circuit short
- Device in damp environment
- Device was suffered from physical damage
- Longtime idle
- After switching on and restoring to factory setting, device still cannot work properly
- Maintenance needed

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