USER MANUAL

Mini digital video Real-Time Multi-protocol Server/Encoder

DMB-8900A-L

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.

Index

Chapter 1 Introduction

1.1 Outline

In the fast changing and highly competitive TV market, operators and TV service providers must deliver access to content on all screens, anytime, anywhere, while also reducing complexity and driving efficiency across all platforms.

The DMB-8900A-L HD encoder has the function of encoding four streams simultaneously. HDMI video source encoding can be compressed into a network stream, and long-distance HD transmission/live broadcast of video can be realized over the Internet or LAN through a wired network.With newest technology WebrtC (option) push streaing over WAN,Ultra-low latency across the network ≤ 300ms viewing.

DMB-8900A-L provides fully functional second development package, which can be applied to education, health care, IPTV, conference, remote education, news interview, court, public security, banking, transportation and other industry application.

1.2 Features

- **Powerful streaming media service function, not only supports common protocols such as RTSP/RTMP, but also supports other customizable protocols such as Security Onvif, GB28181, etc.**
- Webrtc option(by HTTPS with ultra low latency over WAN for 3 terminals)
- Support U disk (FAT-32 and exFAT format) to record TS stream, support TF card to record and store
- For LAN application, it can be used to build a small LAN distribution system,support 5-7 display terminals to pull stream from this encoder
- Support HTTP/RTSP/RTMP/HLS/UDP/ONVIF/SRT streaming/RTP/unicast/multicast and other universal international media streaming protocol.
- Multi-channels different input quantity option: 1 channel (Portable),4channels (1U),16 channels(3U) option
- One video input with four streaming output synchronous,4 streaming with different protocol and resolution,bitrate, main stream up to 1080p 60FPS,sub-stream max to 720p 60FPS video encoding, output resolution can be customized.
- Good compatibility that push streaming to media servers such as Wowza/FMS/RED5 smoothly for live streaming video application
- Support RTMP add user name and password function, support RTSP add user name and password
- Support video real-time loop-out function for monitor the input source image quality without delay
- POE power supply option(Extra Cost)
- Support 1 channel 3.5mm independent audio acquisition input
- Bandwidth with strong adaptability to make sure it can transfer HD, low delay, no lag audio and video signal stable under low-bandwidth network environment

- Not only adopt embedded chip and H.265/H.265 video coding technology,but also combined with enhancement image processing technology,above three points to achieve low bit rate coding for high-definition image quality output, output resolution is adjustable.
- Wider range of code rate adjustable, adjustable from 16Kbit/s to 12Mbit/s,CBR/VBR supported
- Support DHCP to automatically obtain IP (default set is disable, some computer firewalls will block)
- The transmission mode supports TCP, UDP, 1000M (full-duplex mode)
- Support insert Chinese and English OSD,company logo, support OSD scrolling,you can set the picture overlay, X and Y position,font size freely.
- Support one-key restore, version upgrade and remote maintenance, restore default configuration
- Support no video signal encoding, the setting will take effect immediately after completion, no need to restart; support set-top box decoding

1.3 Specifications

Input:

1 channel HDMI signal input
1 channel 3.5 audio input

Output:

1 channel IP signal output
1 channel HDMI signal loop out

VIDEO ENCODING

Input resolution: 1920x1080p/1920x1080i/1280x720p/720*576i/720*576p /640*480i etc.
Coding standard: H.265/H.265
Encoding level: Level 1,Level 2,Level 3, Level 4,Level 5 (the higher the level,the greater the volatility of the code stream)
Encoding level: H.265 BASELINE PROFILE
H.265 MAIN PROFILE
H.265 HIGH PROFILE
H.265 MAIN PROFILE

Output resolution:1920*1080,1280*720,960*540,850*480,720*576,720*480,640*480、

640*320,320*180
Video bit rate: CBR/VBR bit rate control, 16KBIT/S~12MBIT/S
Video frame rate: 5- 60fps
OSD:Word,Picture

AUDIO ENCODING

Input: 1*HDMI with audio in,1*3.5mm independent audio
Audio coding: AAC/MP3/G.711
Audio bit rate: 64Kb/s~384Kb/s
Sampling Rate: 32000,44100,48000 etc.

IP STREAMING OUTPUT

Stream Output

1*RJ 100M/1000M adaptive Ethernet port,TS standard stream,four-streams, ONVIF protocol

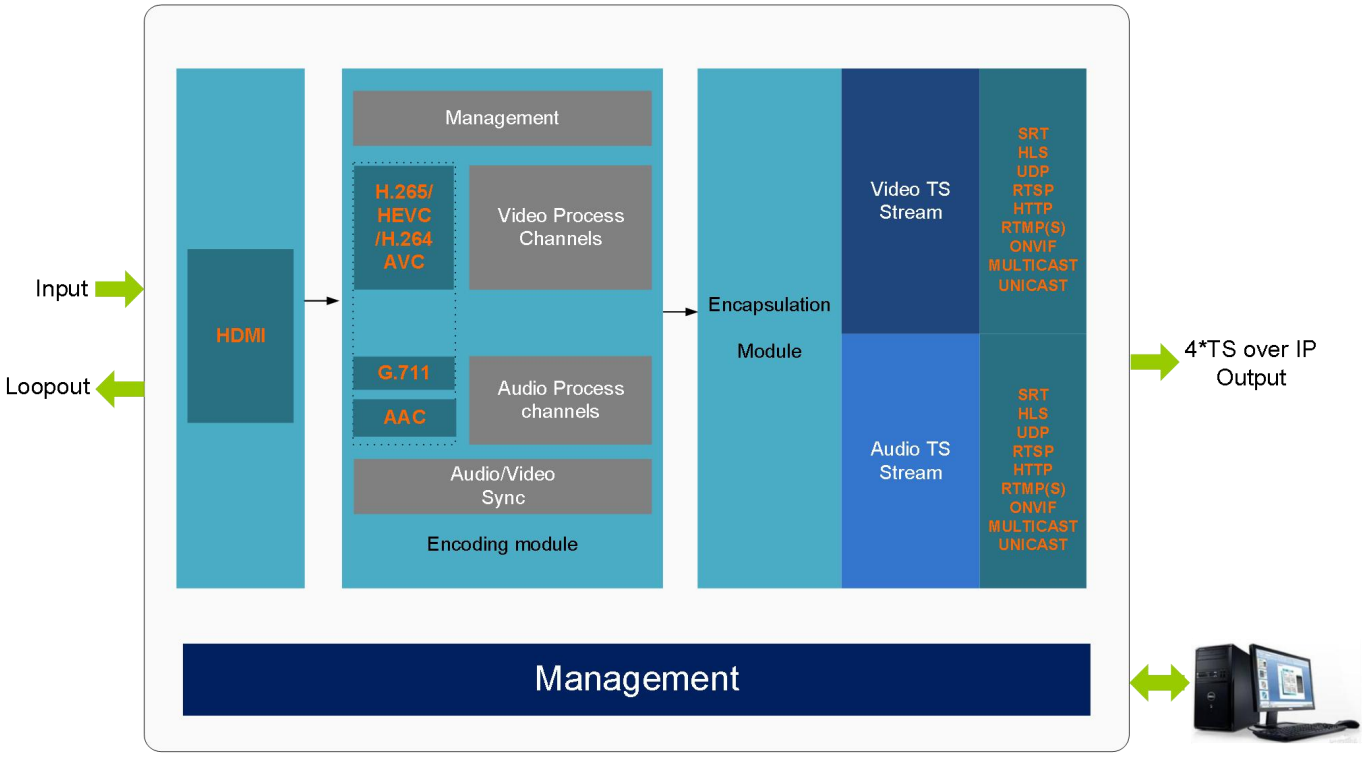
System

Network protocol: Support HTTP,RTSP,RTMP(S),UDP,Multicast,Unicast,SRT,Onvif,HLS
Configuration management:Support WEB configuration

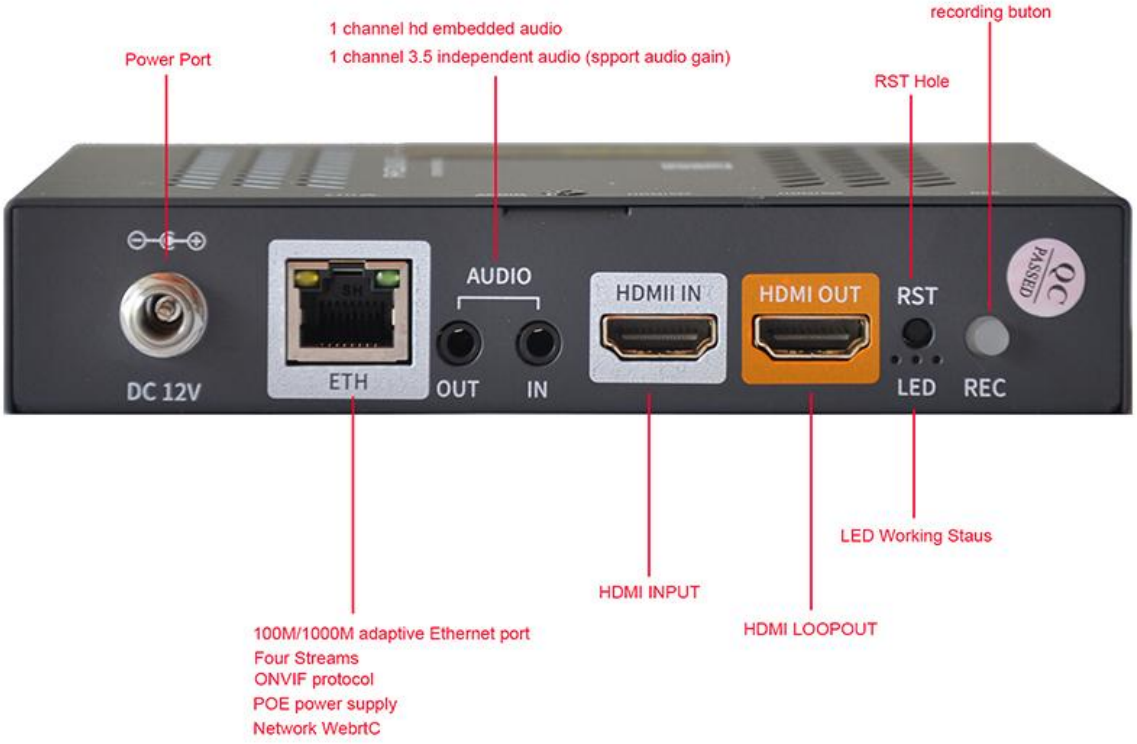
Physical and Power

Power Supply:12V~2A
Working humidity: <90%,no condensation
Operating temperature: -20℃+ 60℃
Power consumption: ＜5W
Dimensions: 150mm x 102mm x 28mm(L*W*H)
Weight: 0.35kg/pc

1.4 Inner Function Principle



1.5 Appearance and Description



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-8900A-L Real-Time HD IPTV Encoder 1PC
- Power Cord 1PC
- HDMI Cable 1PC

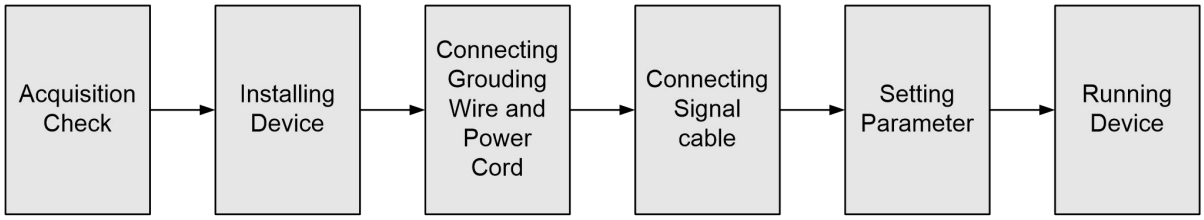
If any item is missing or mismatching with the list above, please contact the local manufacturer.

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-8900A-L Mini Real-Time HD IP 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/m^2)
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 Wires 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-8900A-L Real-Time HD IP 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

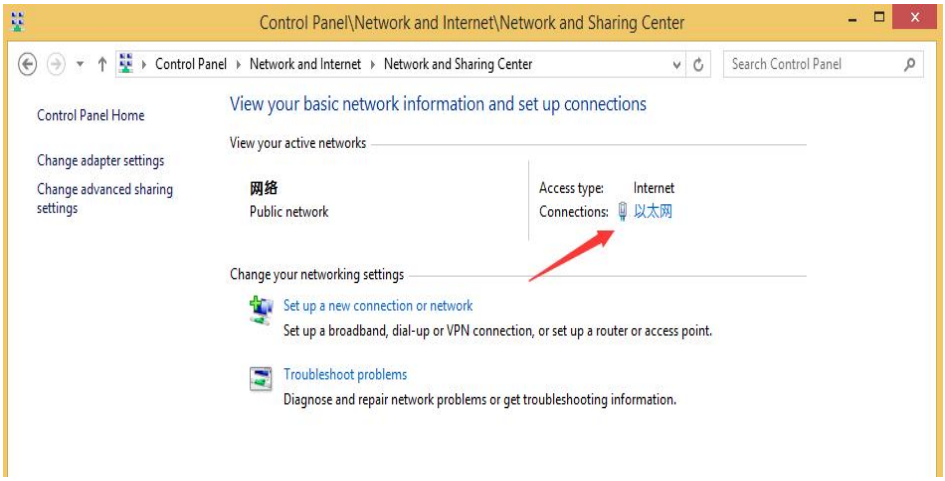
User not only can use front buttons to set configuration, but also can control and set the configuration in computer by connecting the device to web NMS Port. User should ensure that the computer's IP address is different from the DMB-8900A-L's IP address; otherwise, it would cause IP conflict.

3.1 login

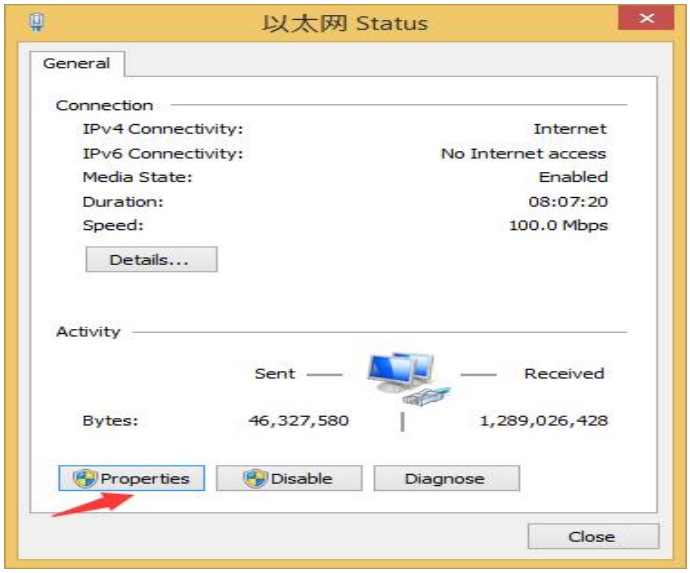
Local ip address settings

1

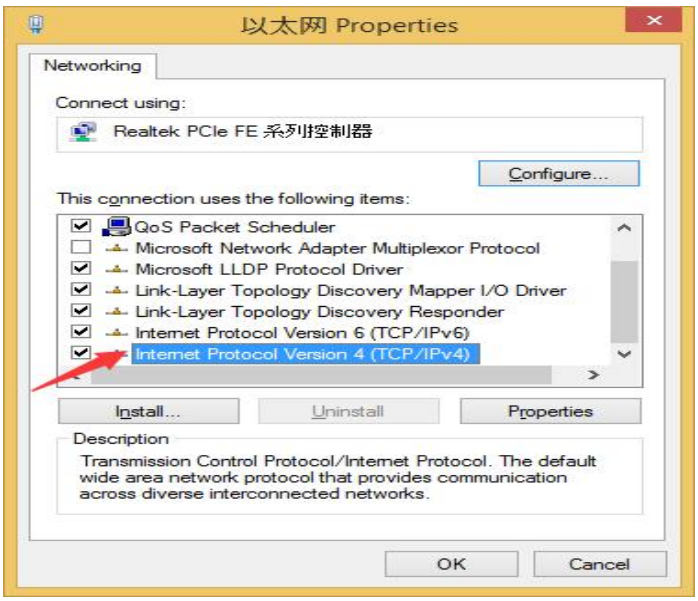
2



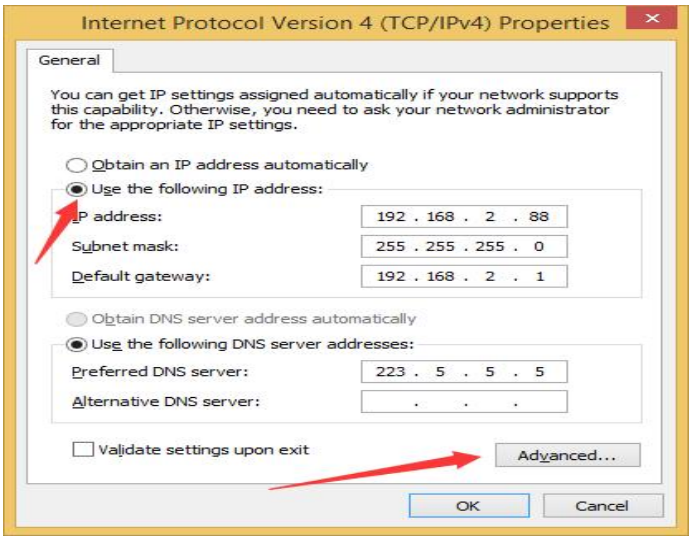
3


以太网 Status
General
Connection
IPv4 Connectivity: Internet
IPv6 Connectivity: No Internet access
Media State: Enabled
Duration: 08:07:20
Speed: 100.0 Mbps
Details...
Activity
Sent
Received
Bytes: 46,327,580 1,289,026,428
Properties
Disable
Diagnose
Close

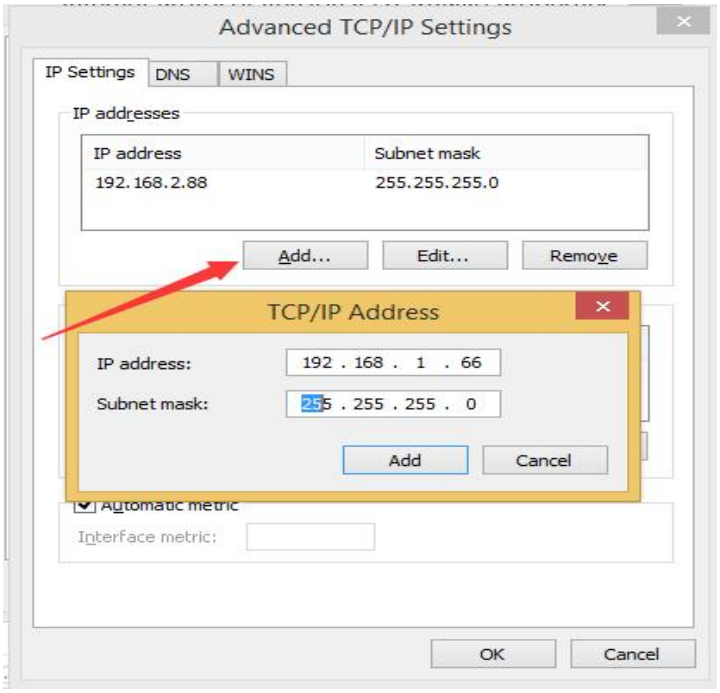
4


以太网 Properties
Networking
Connect using:
Realtek PCIe FE 系列控制器
Configure...
This connection uses the following items:
QoS Packet Scheduler
Microsoft Network Adapter Multiplexor Protocol
Microsoft LLDP Protocol Driver
Link-Layer Topology Discovery Mapper I/O Driver
Link-Layer Topology Discovery Responder
Internet Protocol Version 6 (TCP/IPv6)
Internet Protocol Version 4 (TCP/IPv4)
Install...
Uninstall
Properties
Description
Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.
OK
Cancel

5



6



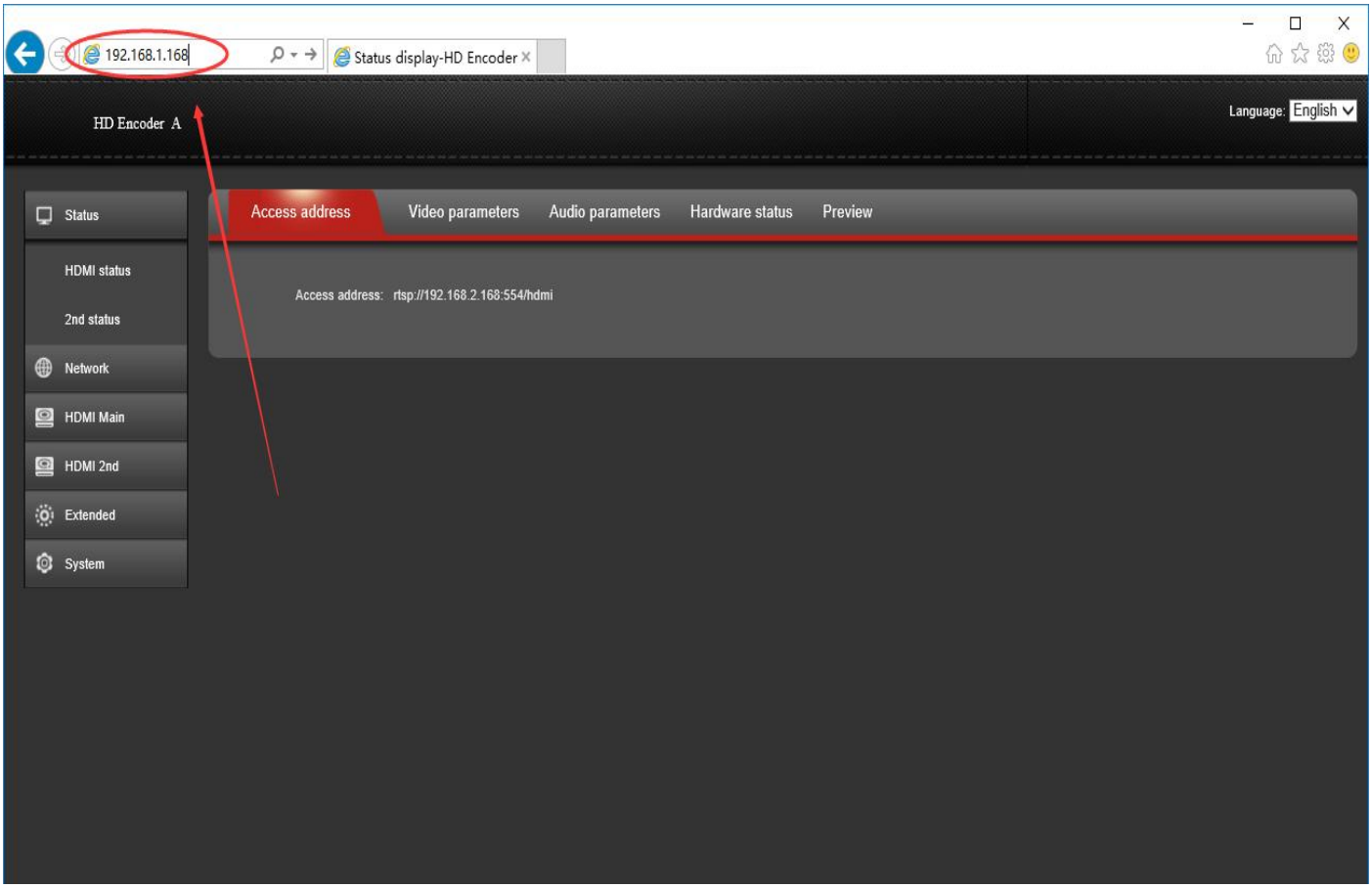
Ensure the IP address and the network is working and ain't the existed one. Ping the encoder IP address when network resumed, it's working as following picture shows, you can access to encoder on WEB now.

When proceed the setting of WEB interface configuration, user need to modify computer's IP 192.168.1.*, the factory default IP of DMB-8900A-L is: 192.168.1.168

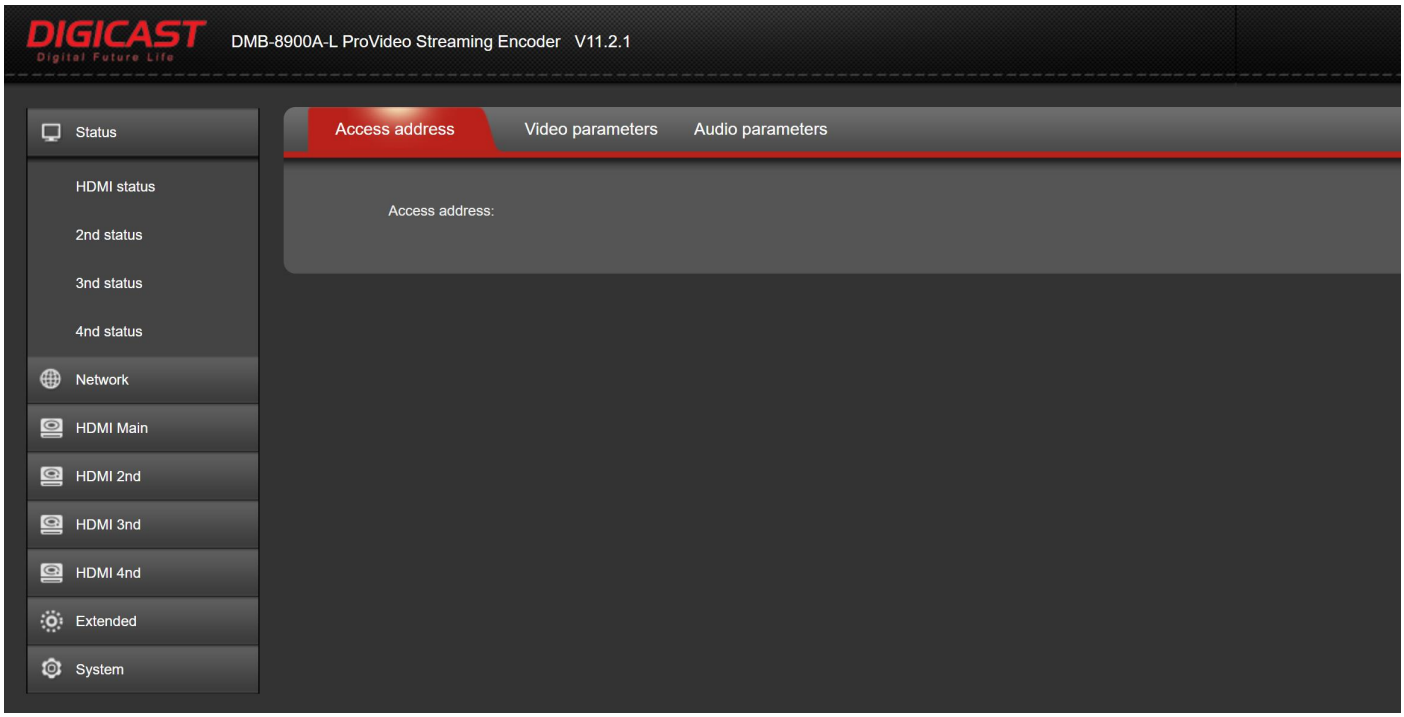
Reset Initialization: the panel has the RST, used for DMB-8900A-Linitial reset, under the power-on situation, press & hold it for 10s, it will be restarted automatically, so the parameters will be initialization. After the IP initialized, 192.168.1.168.

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

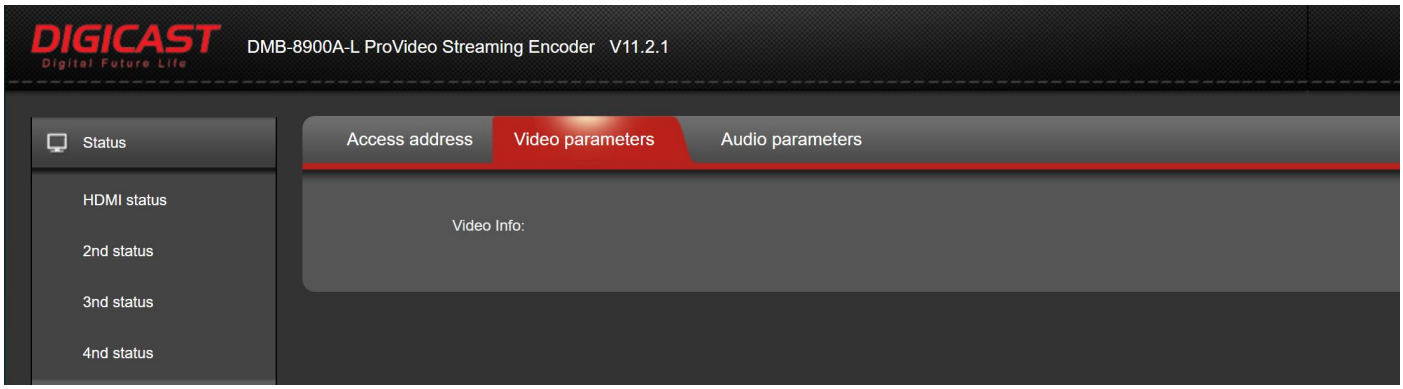
2. Open IE, input 192. 168. 1. 168, enter WEB interface, **Users' name**: admin; **Password**: admin.



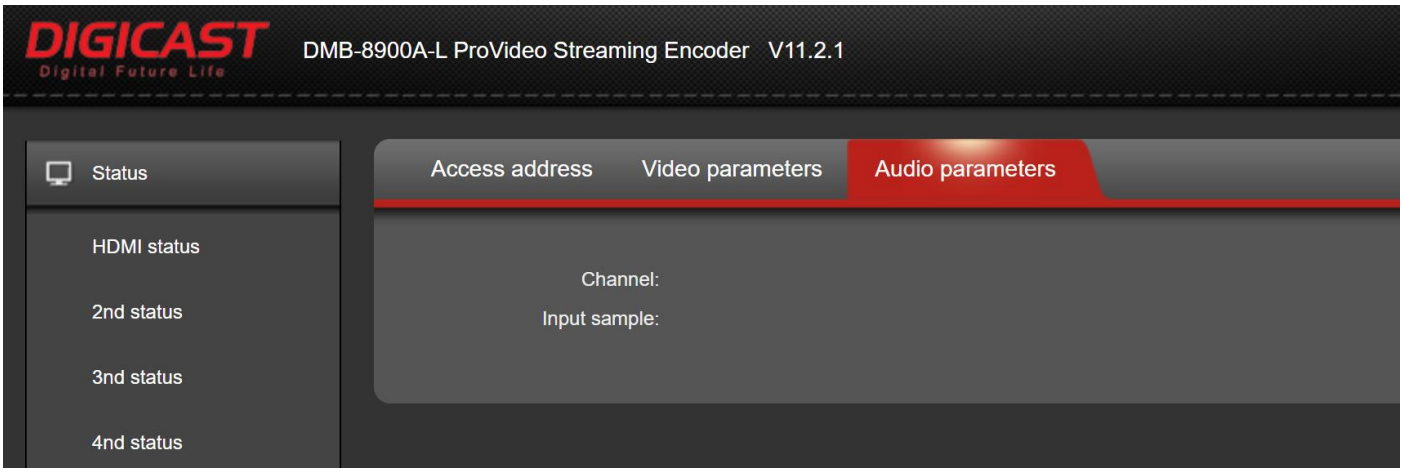
3.2 Status Display:



1. Access address: can directly copy to VLC broadcasting software to proceed decoding.



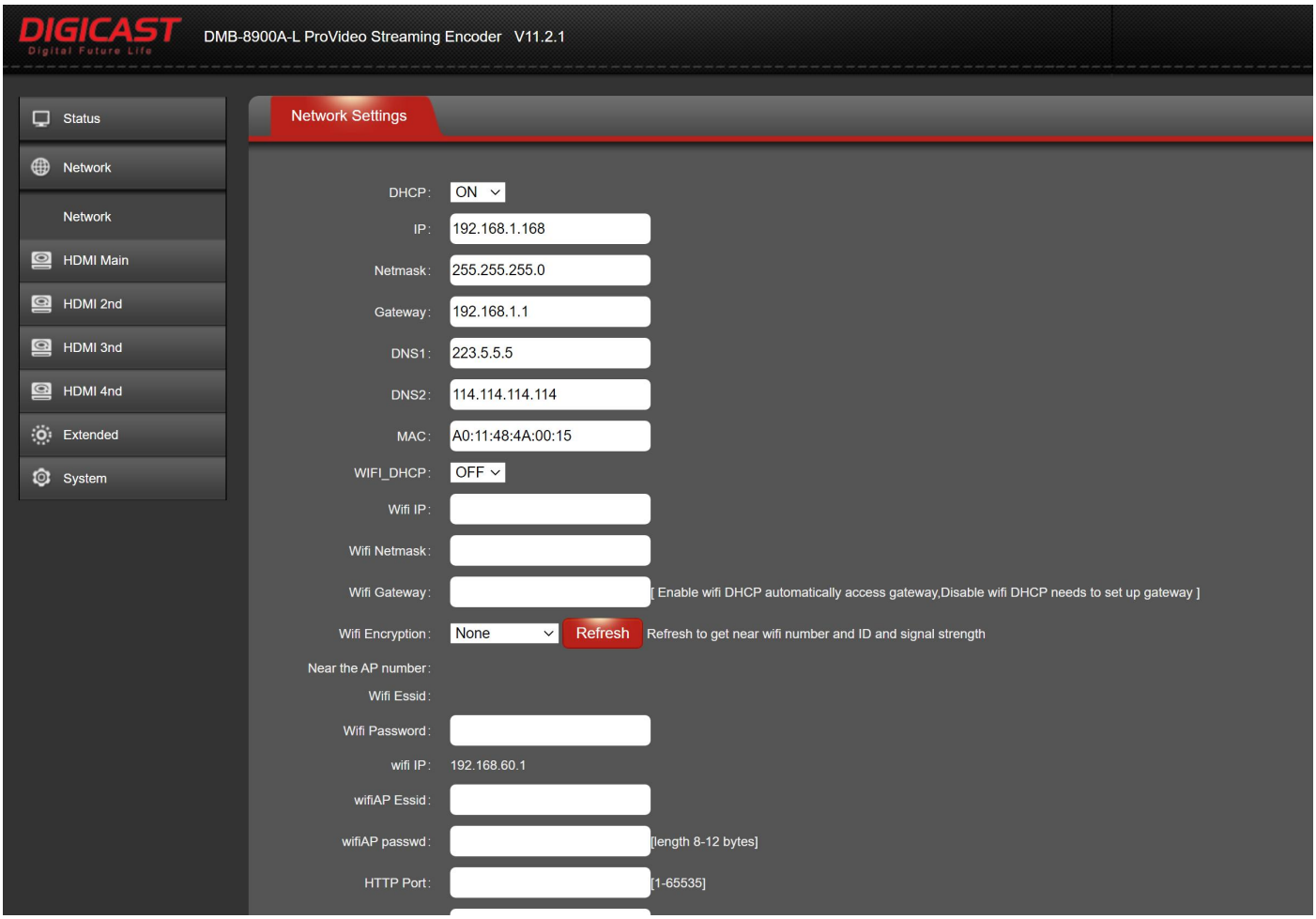
2. Video parameters: the inputs video signals parameters;



3. Audio parameters: the inputs audio signals parameters.

NOTE： If it encoding normally, the interrupt number will produce the updated data; If no data updated, pls check your video cable & video source works normally or not.

3.3 Network Setting:

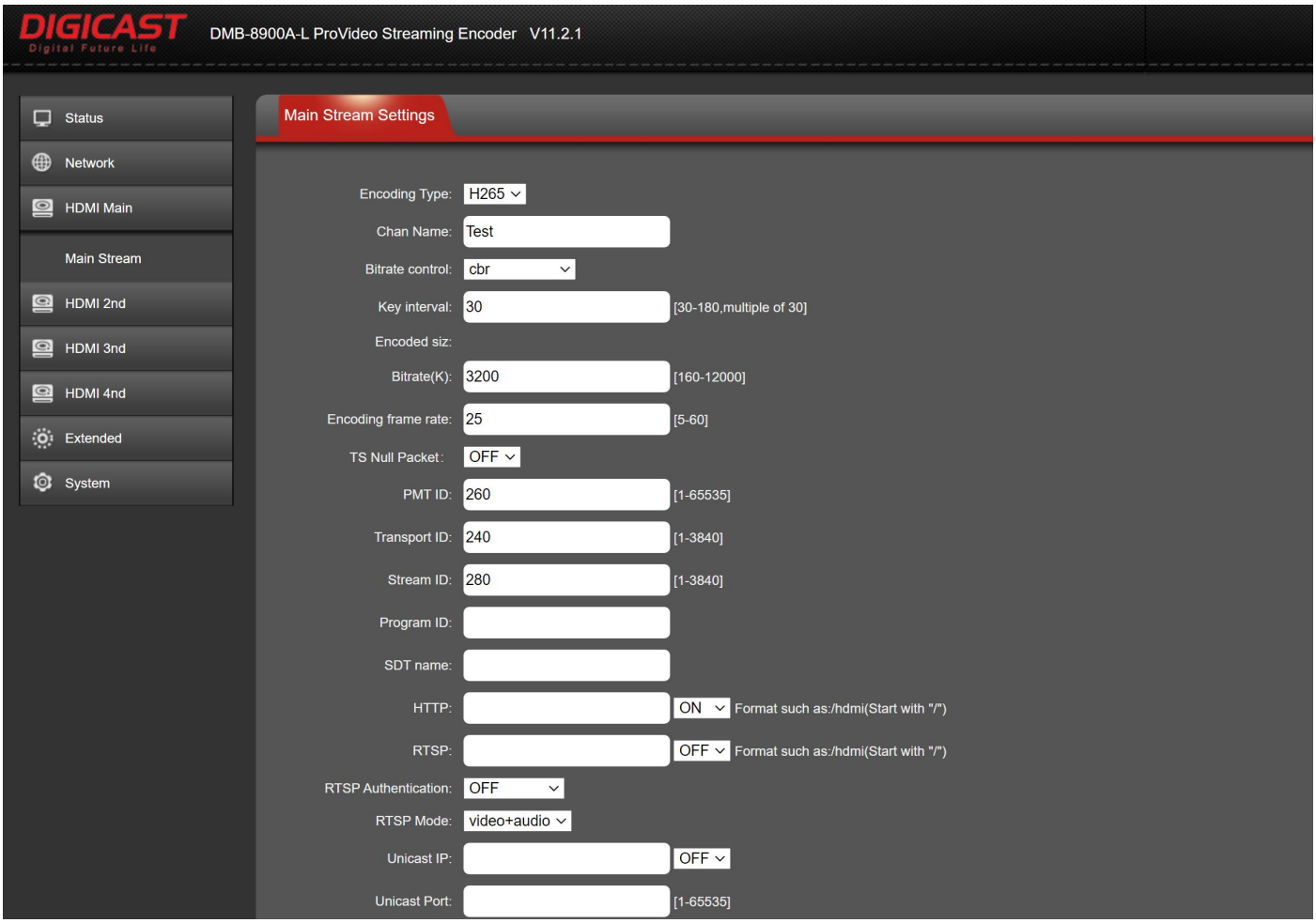


Note: the Device IP address: factory default: 192.168.1.168, if user modified it, and forget the IP address, under the power-on situation, user can press the reset button for 10s, then restart it to restore factory default.

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.265 Encoding parameter: including H.265 Level, Frame rate, bitrate control and so on.
2. The setting for TS output protocol: Note: support just only enable one output protocol from choosing HTTP or RTSP or UDP.
3. If use RTMP protocol, you need to input your server's IP address, port, appname and stream name.

Note: For the Ustream Server Setting Explanation

E.g: URL: 1.3433929.fme.ustream.tv/ustreamVideo/1234567

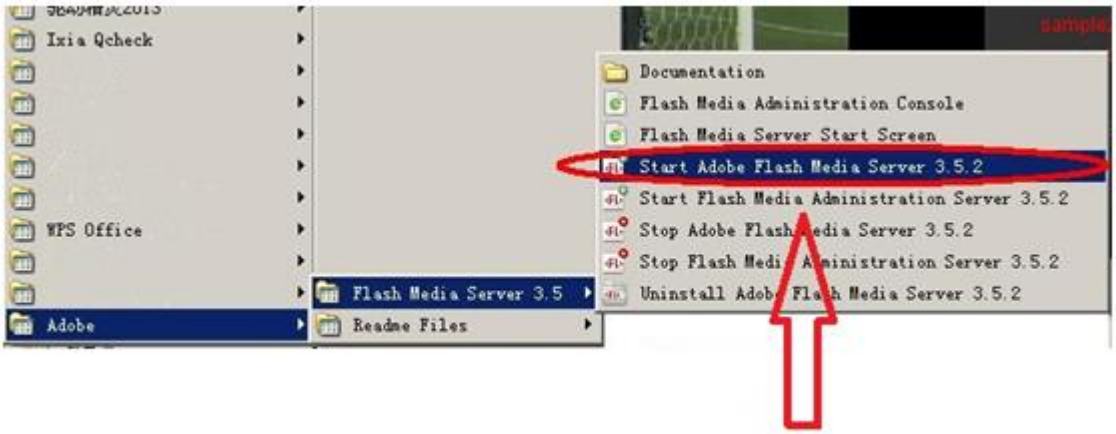
stream key:oX0rTdnXe6Kp2PkBt9XGdn22tXAKIdX7

4. 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 No. , User name and password input: 1

2. Enable Backstage Software:



Note: This software is running at the backstage.

3. Open the Folder FlashPlayer: 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

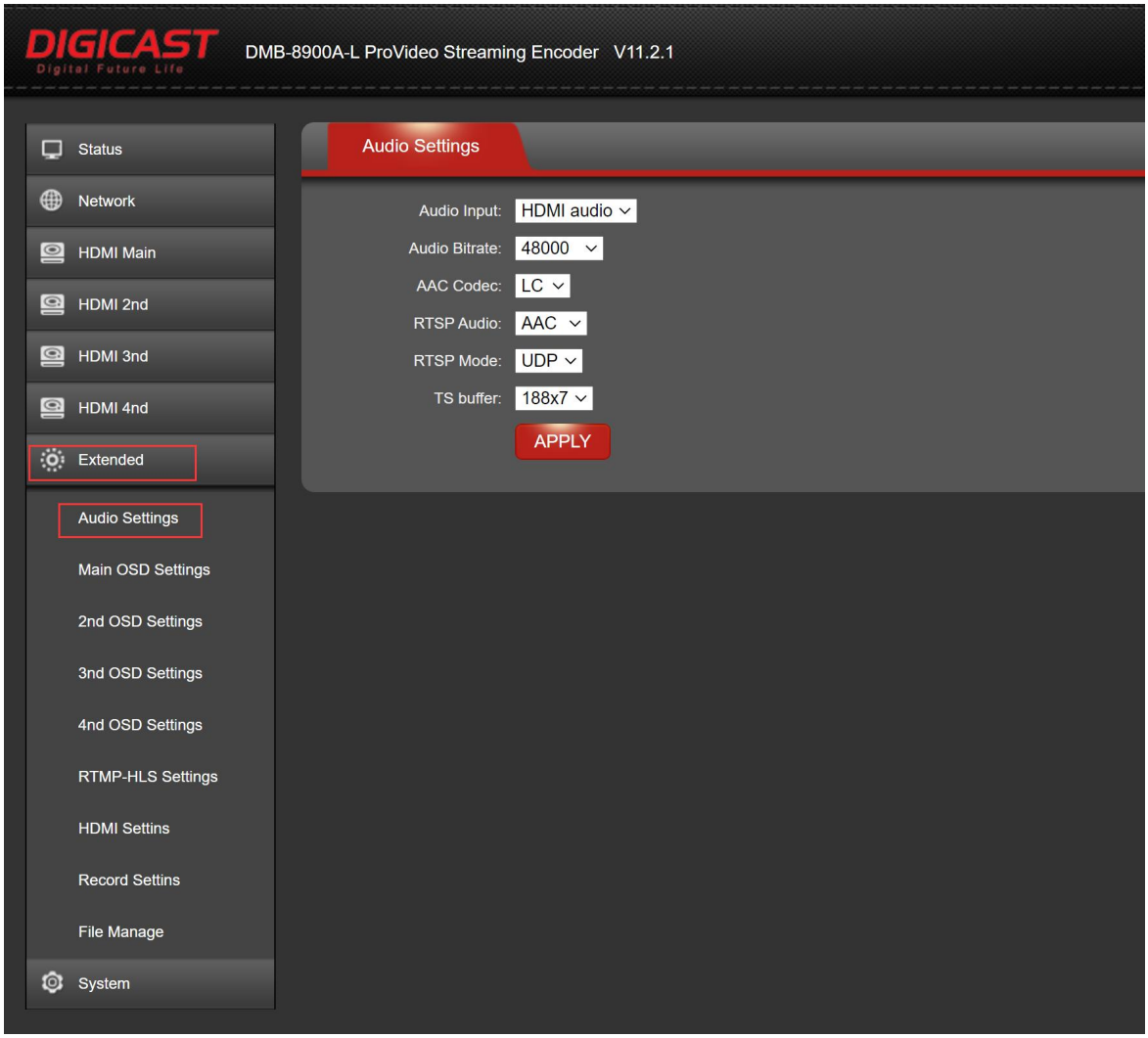
3.4.2 HDMI Second Stream Setting:

Same with HDMI Main Configuration, But note: the RTMP of (HDMI Second Stream) only support the same IP with Main Stream, but different Stream name.

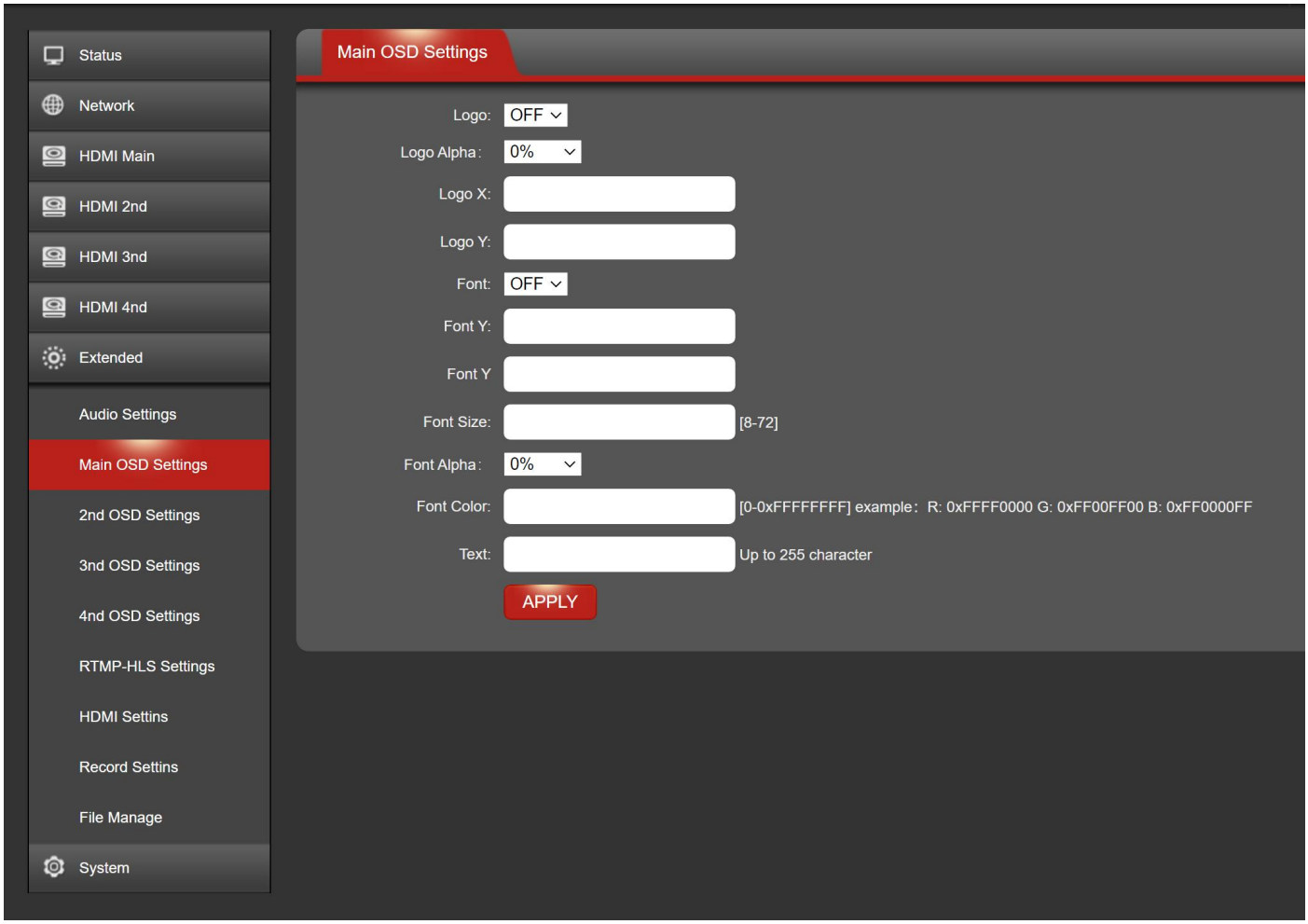
3.5 Extended Setting:

3.5.1 Audio setting:

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

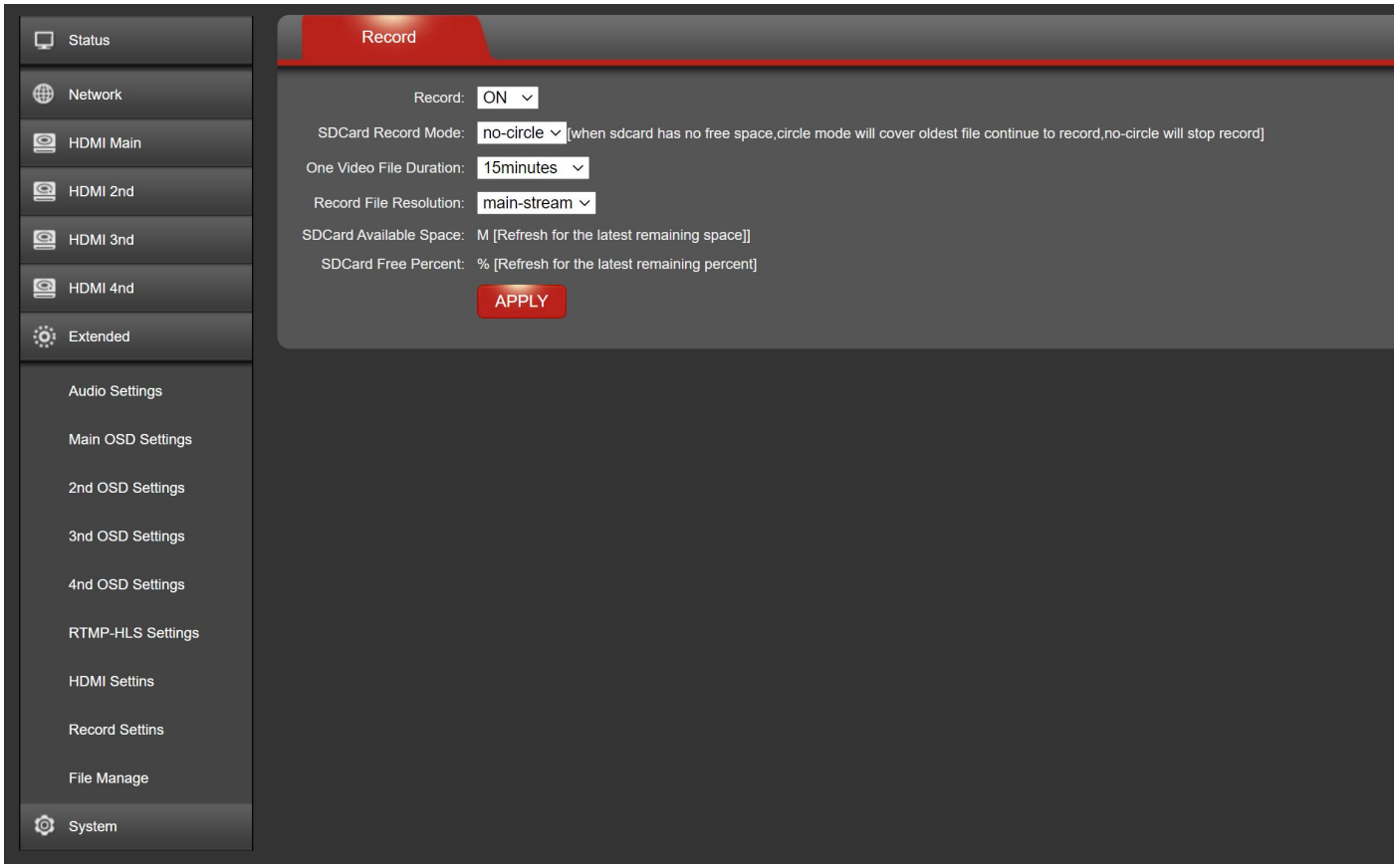


3.5.2 OSD setting:

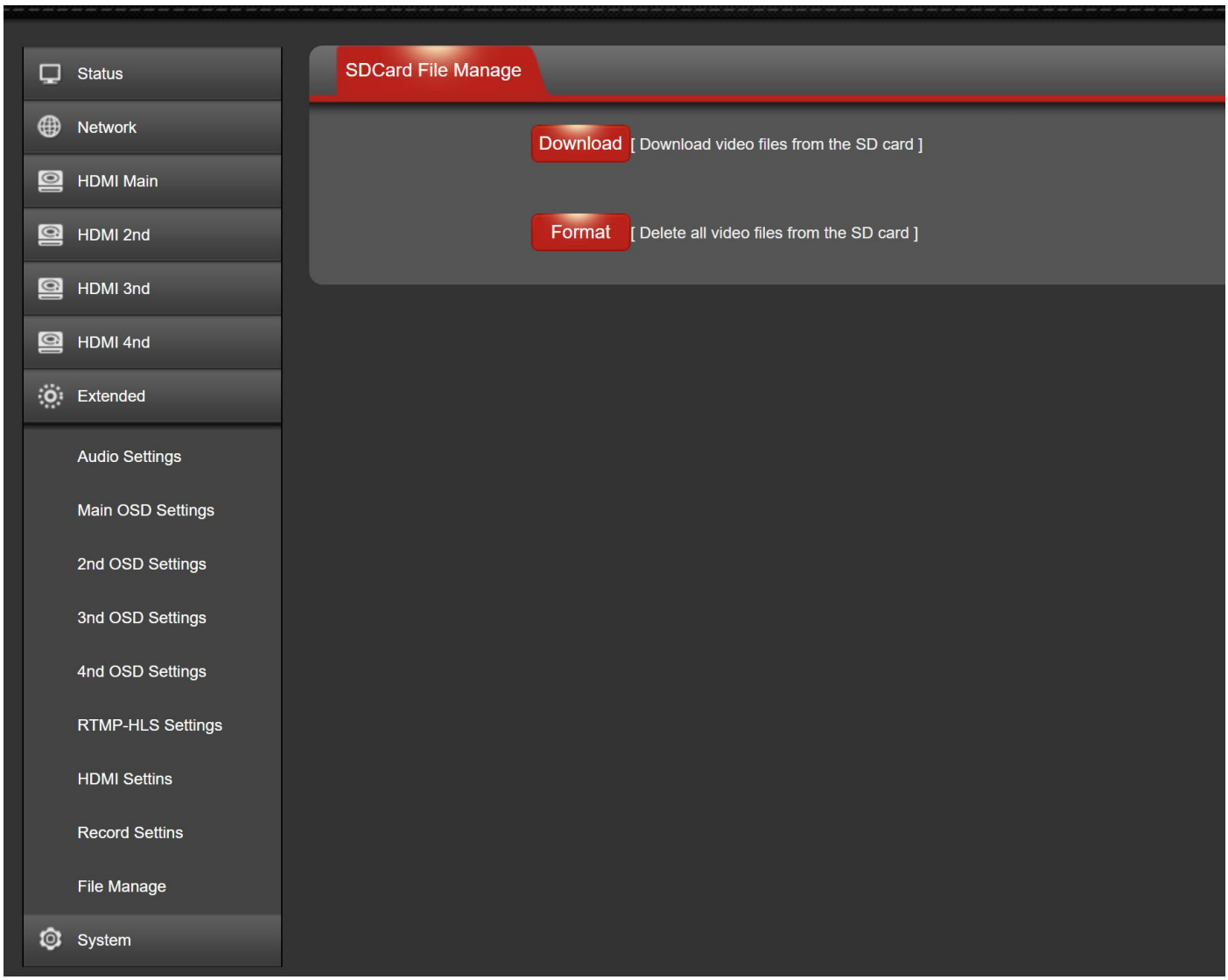


This part can be edited the characters that displayed on the page, currently, support 32 letters or numbers. This part, user can edited the size and location of the characters. Note: with the resolution changing, the characters size is also changing. Currently, transparency not open for users.

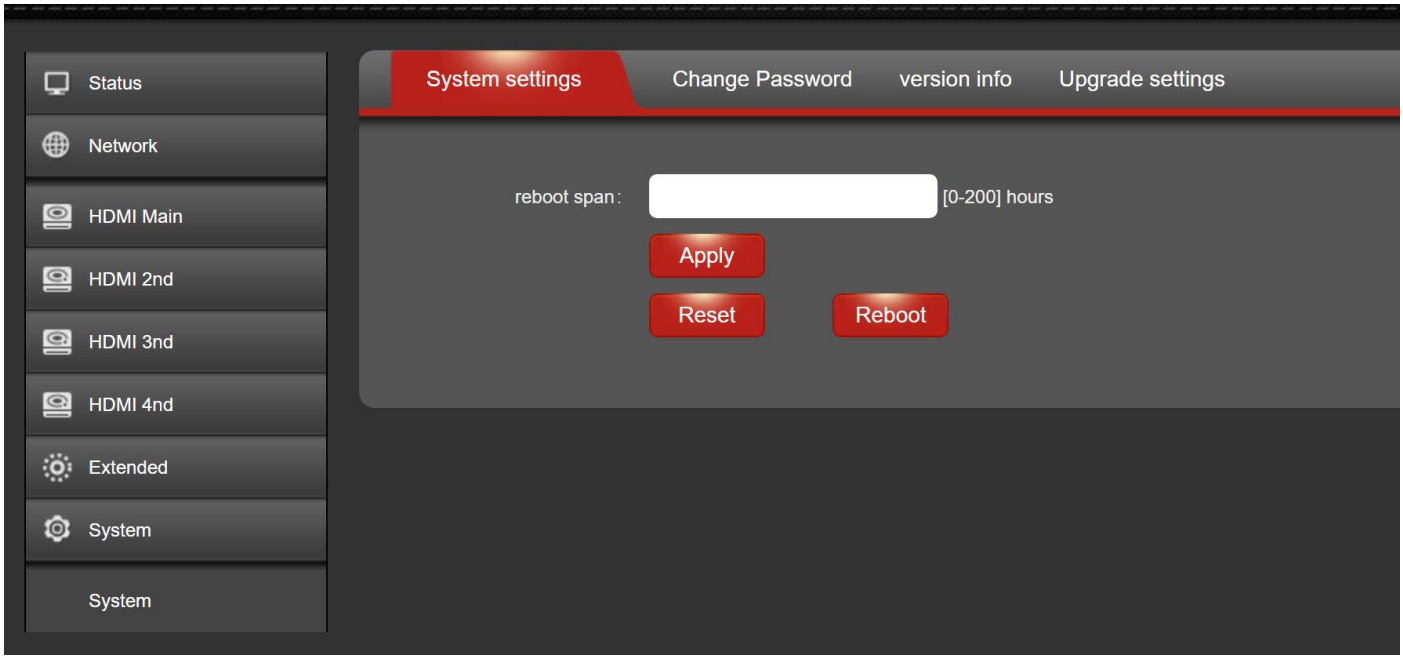
3.5.3 Record setting



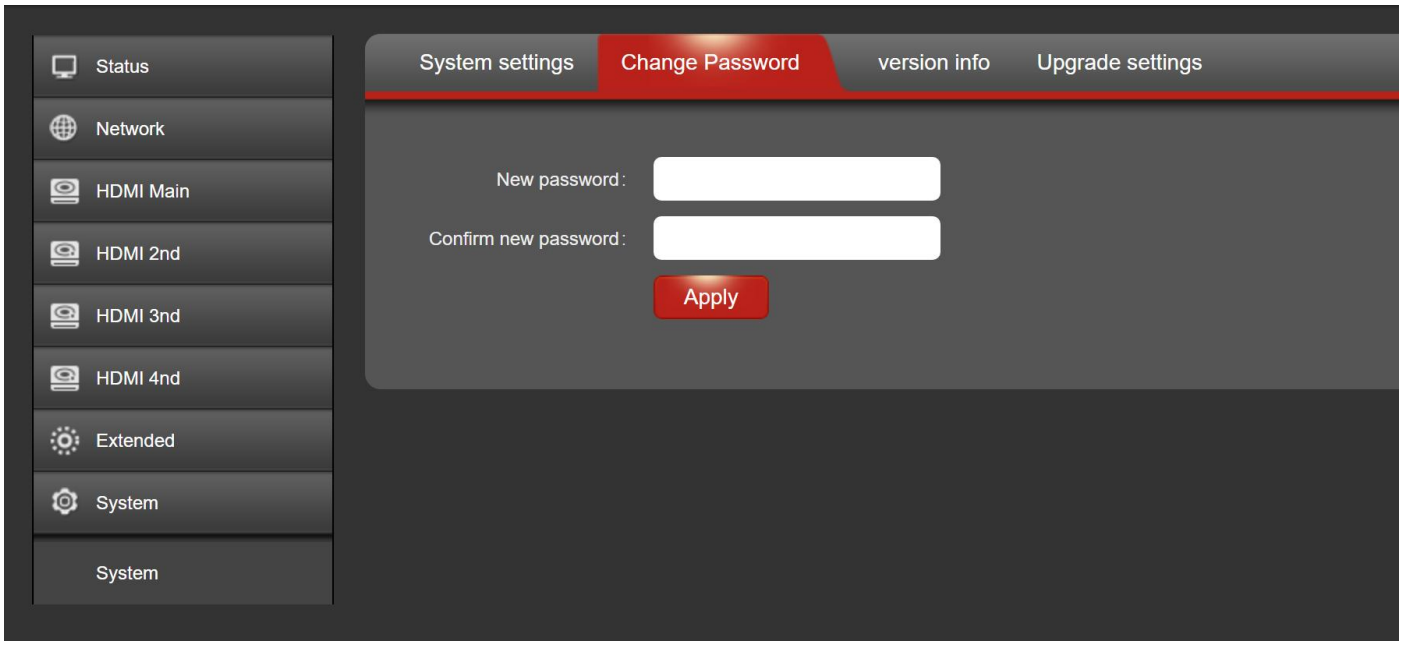
3.5.4 File Mange



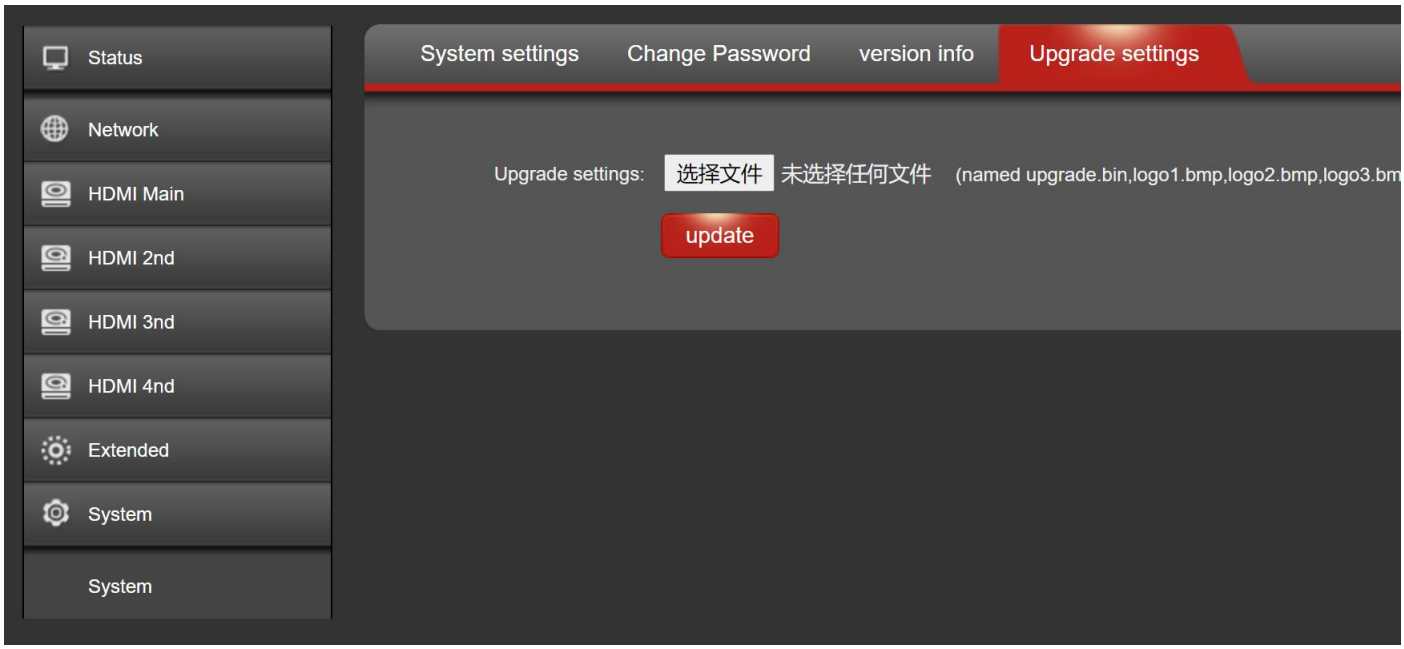
3.6 System Setting:



3.6.1 password setting:

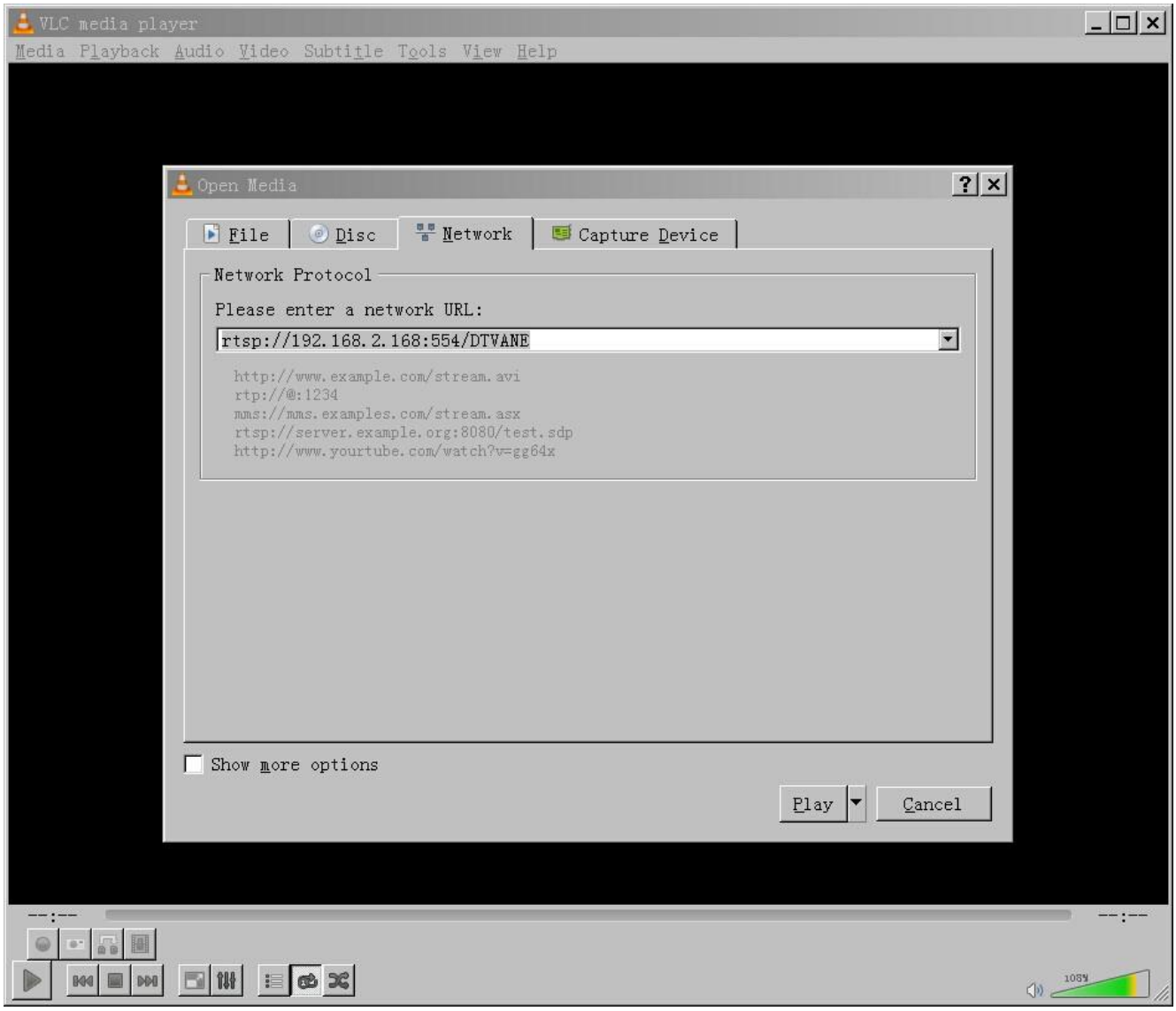


3.6.2 upgrade setting:



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

3.7 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

HANGZHOU
DIGICAST TECHNOLOGY CO.,LTD
E-mail: info@digicast.cn Http: // www.digicast.cn
Tel: +86 571 85020366 Fax: +86 571 85020368
Addr.: 9/F , No.1 Building Yitian Plaza, No.292 Eastcom Avenue, Hangzhou, China