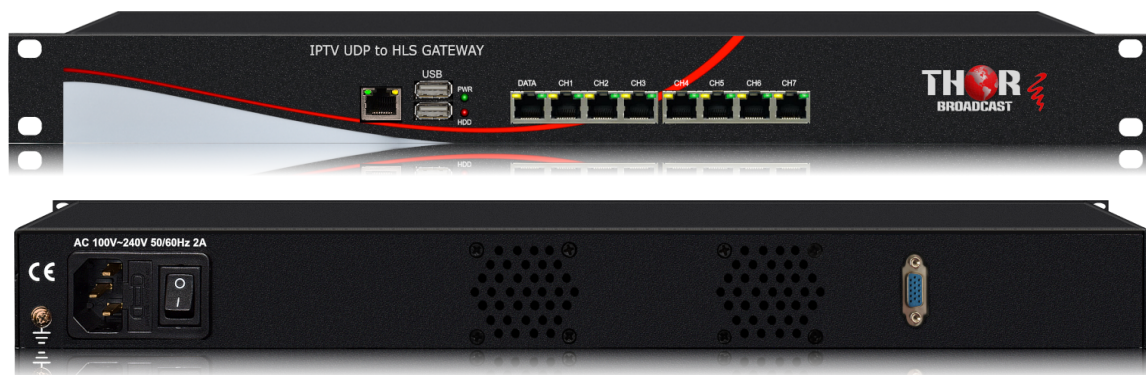# User Manual

IPTV UDP to HLS GATEWAY

H-IPTV-GATEWAY

A Note from Thor Broadcast about this Manual

Intended Audience

This user manual has been written to help people who have to use, integrate and to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

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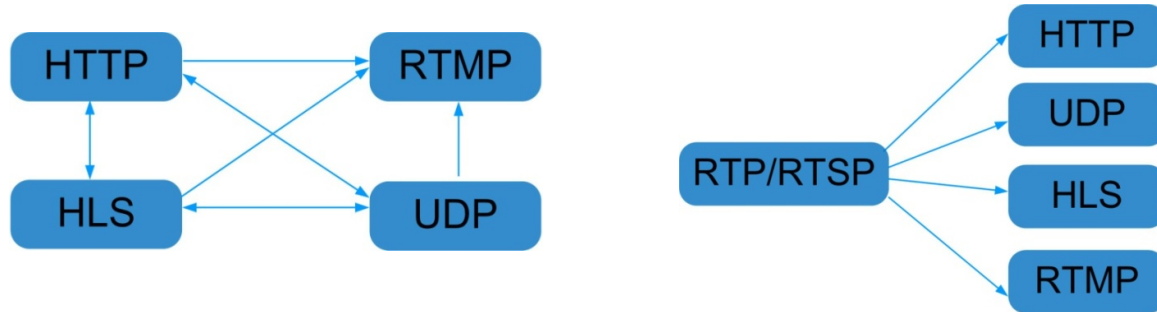# DIRECTORY

Chapter 1 Product Outline

1.1 Outline

H-IPTV-GATEWAY IPTV Gateway is a device which is used for the protocol conversion scenarios and streaming media distribution scenarios. It can convert the broadcast network IP stream over HTTP, UDP, RTP, RTSP and HLS and TS file into HTTP, UDP, HLS and RTMP protocol. The system can achieve the integration by receiving a variety of commercial streaming media services. Also, the system can provide streaming media services directly.
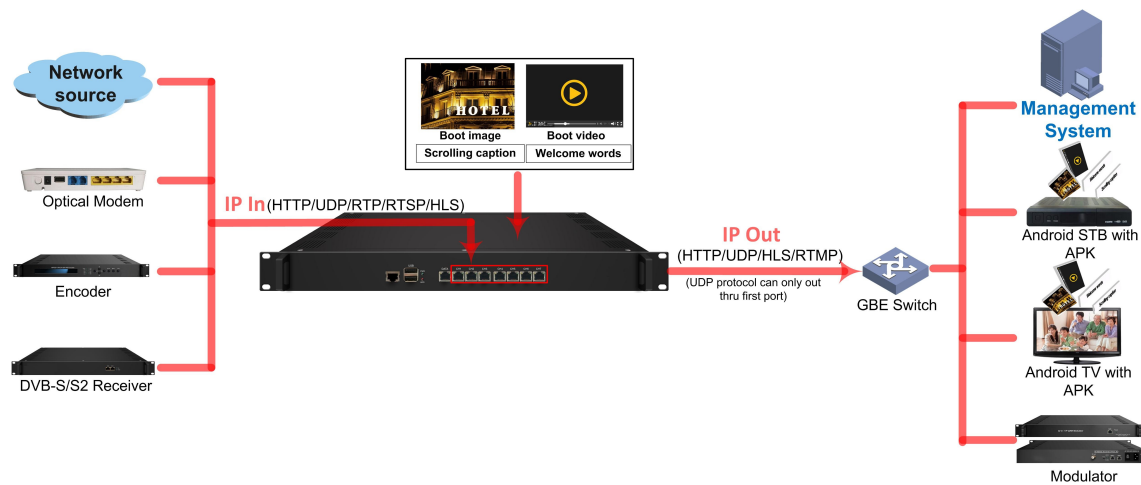
1.2 Features

- **8 Data ports:**

  First Data port: IP out over HTTP, UDP (SPTS), HLS and RTMP

  Data CH1-7 ports: IP in over HTTP, UDP (SPTS), RTP (SPTS), RTSP and HLS

                   IP out over HTTP, HLS and RTMP (Unicast)

- **Support TS files uploading through Web management**

- **Support IP anti- jitter function**

- **Support adding scrolling caption, welcome words, boot image and boot video (this function is only applicable to IP out application and the STB/Android TV must be installed THOR IPTV APK)**

- **Support downloading THOR IPTV APK directly from this device**

- **Support about 80 HD/SD programs (Bitrate:2Mbps) When HTTP/RTP/RTSP/HLS is converted into UDP (Multicast),the actual application shall prevail, and suggest maximum 80% CPU utilization**

- **Support program playing with APK downloaded android STB and TV, maximum 150 terminals**

- **Control via web-based NMS management through DATA port**

1.3 IP Protocol Conversion


1.4 General Principle Chart

1.5 Specifications

Input	IP input thru CH 1-7(1000M) over HTTP, UDP(SPTS), RTP(SPTS), RTSP (over UDP, payload: mpeg TS) and HLS
	TS files uploading through Web management
IP output	IP out thru Data port (1000M) over HTTP (Unicast), UDP(SPTS, Multicast) HLS and RTMP (Program source should be H.264 and AAC encoding) IP out thru CH 1-7(1000M) over HTTP, HLS and RTMP (Unicast)
System	Memory: 4G
	Solid-State Disk(SSD): 16G
	Channel switching time with THOR STB: HTTP (1-3s), HLS (0.4-0.7s)
	Support adding scrolling caption, welcome words, boot image and boot video (this function is only applicable to IP out application and the STB/Android TV must be installed THOR IPTV APK)
	Play programs with APK downloaded android STB and TV, maximum 150 terminals
	Support about 80 HD/SD programs (Bitrate: 2Mbps) When HTTP/RTP/RTSP/HLS is converted into UDP (Multicast), the actual application

	shall prevail, and suggest maximum 80% CPU utilization	
	web-based NMS management thru DATA port	
General	Demission	482mm×324mm×44mm (WxLxH)
	Temperature	0~45℃(operation), -20~80℃(storage)
	Power Supply	AC 100V±10%, 50/60Hz or AC 220V±10%, 50/60Hz

1.6 Appearance and Description

Front Panel Illustration:
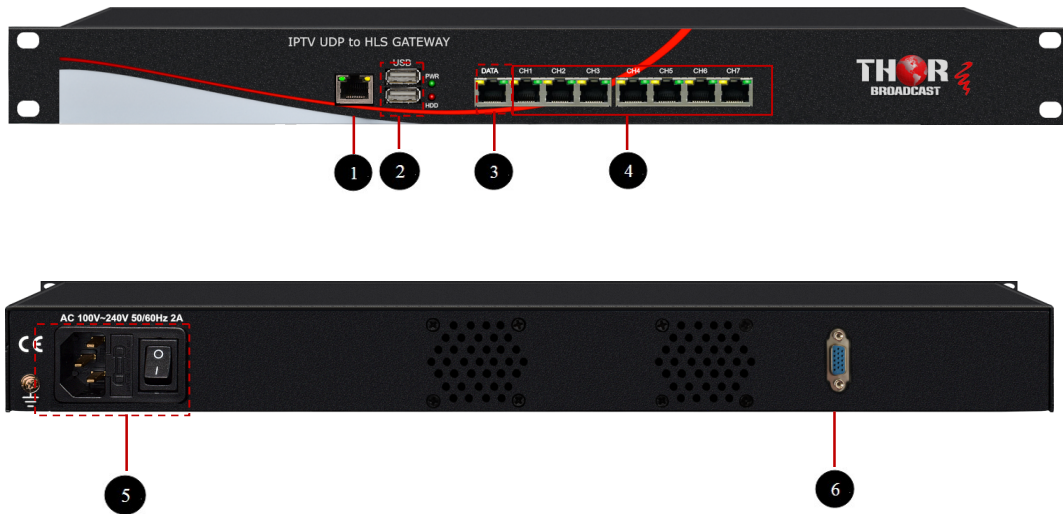
1/2	Reserved ports for future
3	Data port for IP output and Network management
4	CH1~CH7: IP input / Unicast output ports
5	Grounding Pole/ Power Switch and socket
6	VGA port for connecting displayer

Chapter 2 Installation Guide

2.1 Acquisition Check

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

● H-IPTV-GATEWAY IPTV Gateway

● User's Manual

● Grounding Cable

● Power Cord

If any item is missing or mismatching with the list above, please contact local dealer.
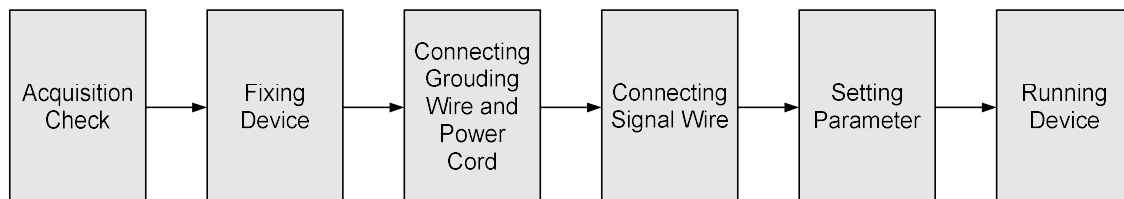
2.2 Installation Preparation

When users install device, please follow the below steps. The details of installation will be described at the rest part of this chapter. Users can also refer rear panel chart during the installation.

The main content of this chapter including:

● Checking the possible device missing or damage during the transportation

● Preparing relevant environment for installation

● Installing gateway

● Connecting signal cables

● Connecting communication port (if it is necessary)

2.2.1 Device's Installation Flow Chart Illustrated as following：

Acquisition Check → Fixing Device → Connecting Grouding Wire and Power Cord → Connecting Signal Wire → Setting Parameter → Running Device

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: $1X10^7 \sim 1X10^{10\Omega}$, Grounding current limiting resistance: 1M (Floor bearing should be greater than 450Kg/㎡)
Environment Temperature	5~40℃(sustainable) , 0~45℃(short time) , installing air-conditioning is recommended
Relative Temperature	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 AC power 100V-240V 50/60Hz 2A. 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.

- Coaxial cable's outer conductor and isolation layer should keep proper electric

conducting with the metal housing of device.

- 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 grounding wire conductive screw is located at the right end of rear panel, and the power switch, fuse, power supply socket is just beside ,whose order goes like this, power switch is on the left ,power supply socket is on the right and the fuse is just between them.

- **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 H-IPTV-GATEWAY IPTV Gateway, user should set the power switch to "OFF".

Chapter 3 WEB NMS operation

User can only 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 H-IPTV-GATEWAY's IP address; otherwise, it would cause IP conflict.

3.1 login

The default IP of this device is 192.168.200.136:3333 (3333 is IP port number which can't be changed)

Connect the PC (Personal Computer) and the device with net cable, and use ping command to confirm they are on the same network segment.

I.G. the PC IP address is 192.168.200.136, we then change the device IP to 192.168.200.xxx (xxx can be 0 to 255 except 136 to avoid IP conflict).

Use web browser to connect the device with PC by inputting this device's IP address in the browser's address bar and press Enter.

It displays the Login interface as Figure-1. Input the Username and Password (Both the default Username and Password are "admin".) and then click "Login" to start the device setting.
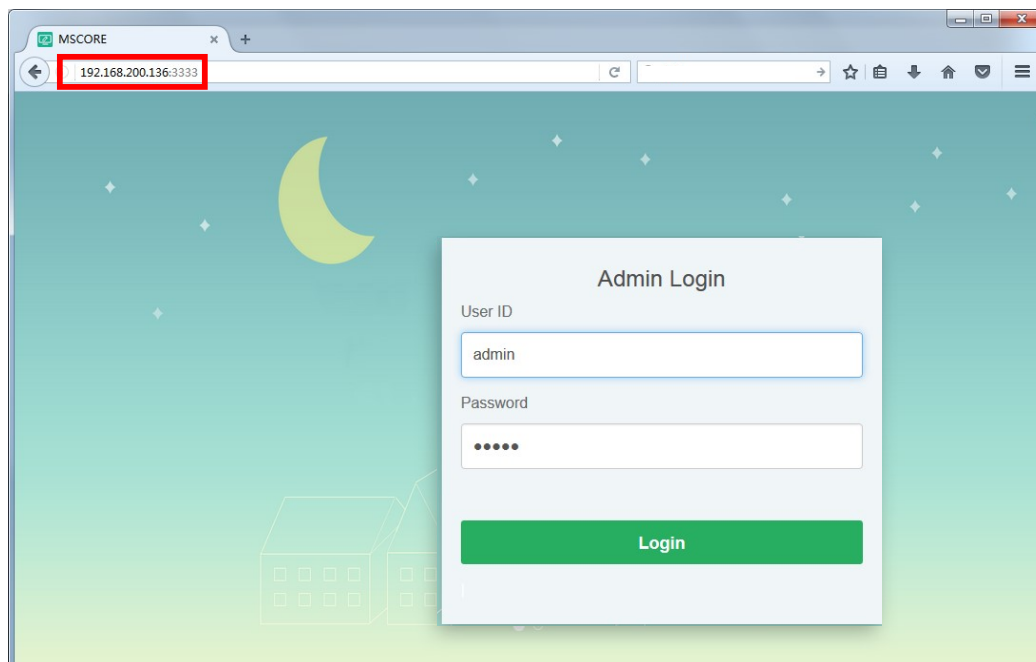
Figure-1

3.2 Operation

System Chart

When we confirm the login, it displays the status interface where users can have an overview of system chart. (Figure-2)
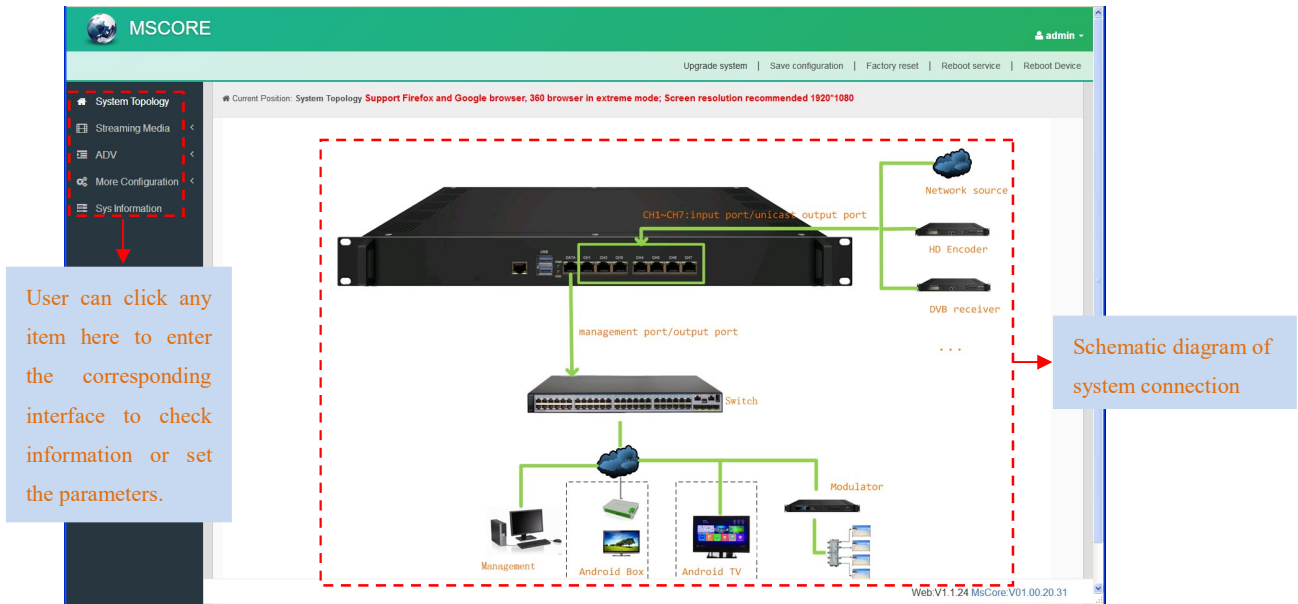

Figure-2

Streaming Media→ NIC Management

From the menu on left side of the webpage, clicking "NIC Management", it displays the interface where users can set the dialing and NIC parameters. (If users want to use dialing function, please contact with local operators.) (Figure-3)
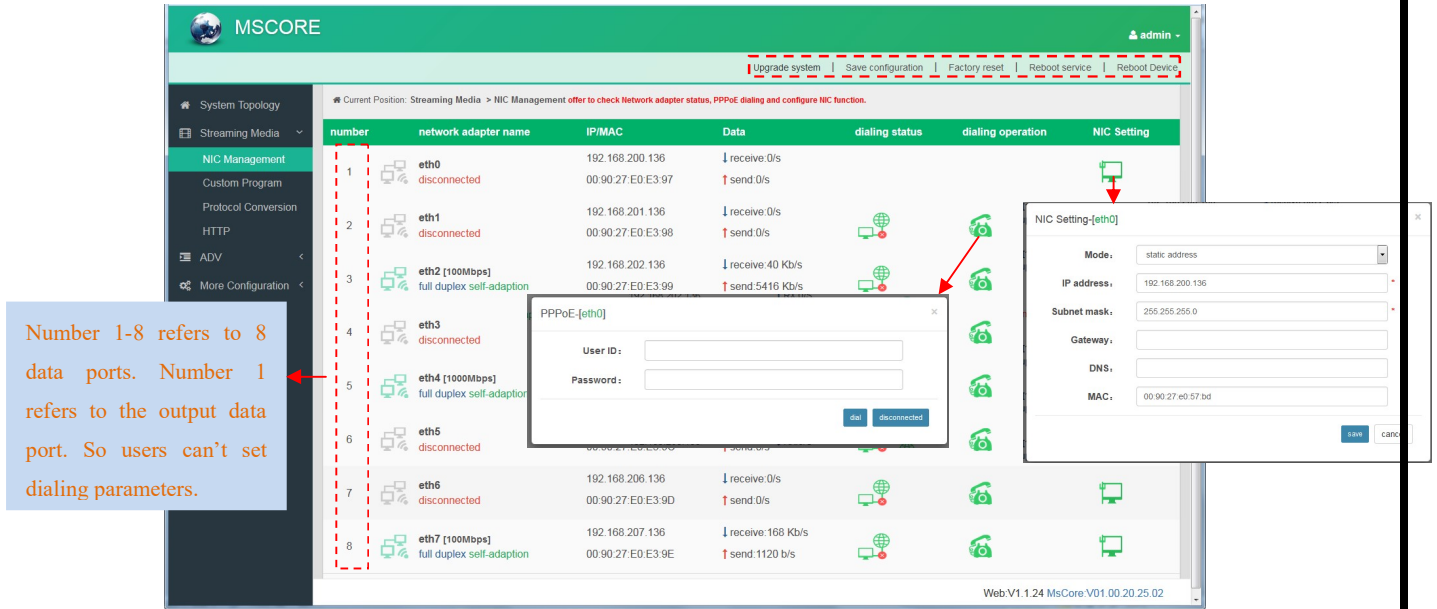
Tel: (800) 521-8467   Email: sales@thorfiber.com   http://www.thorbroadcast.com

Number 1-8 refers to 8 data ports. Number 1 refers to the output data port. So users can't set dialing parameters.

Figure-3

Streaming Media→ Custom Program

Clicking "Custom Program", it displays the interface where users can upload TS files from local sources for distributing programs. (Figure-4)
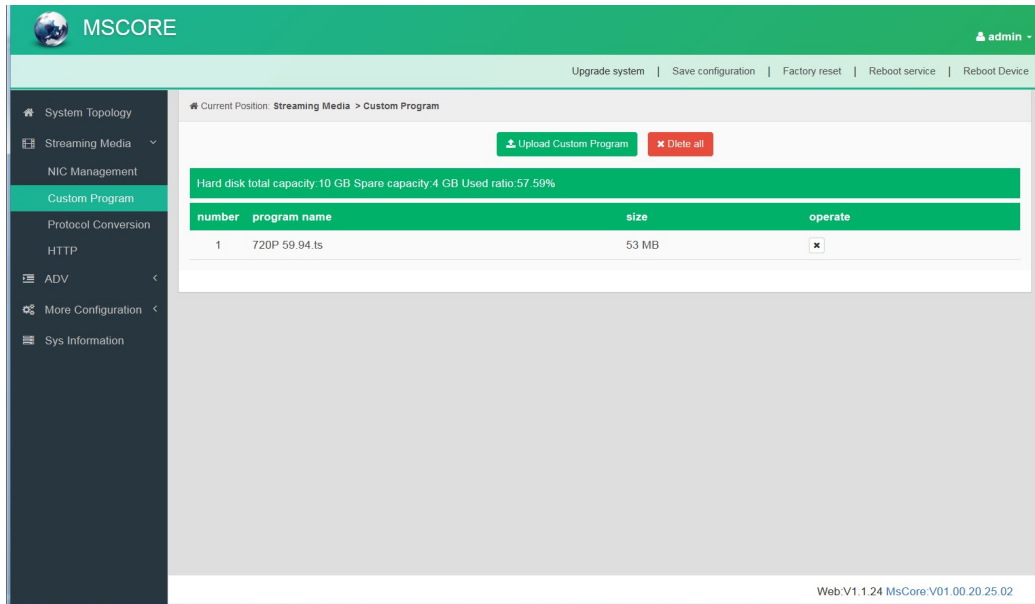
Figure-4

Streaming Media→ Protocol Conversion

Clicking "Protocol Conversion", it displays the interface where users can set protocol conversion parameters and add programs from CH1-7. Input protocol supports HLS, HTTP, RTP, UDP, RTSP (RTP over UDP, playload MPEGTS). Output supports HLS, UDP, RTMP

(RTMP is only supported when input sources are H.264 and AAC encoding.) Output address can't be changed when selecting HLS as output protocol. (Figure-5)
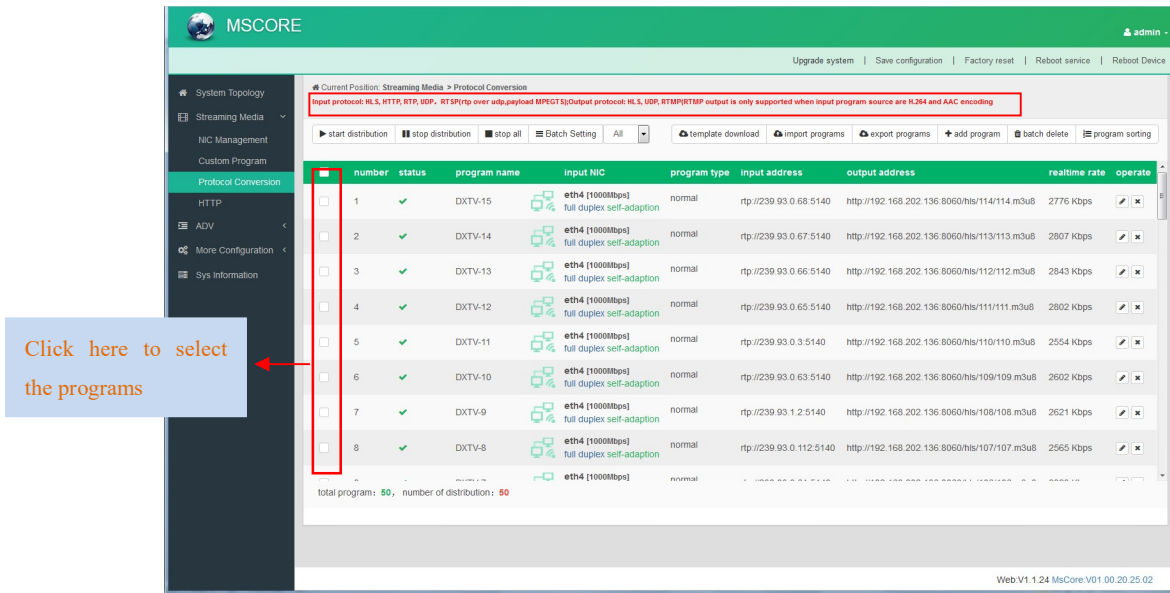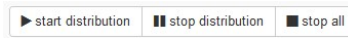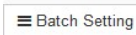

Figure-5

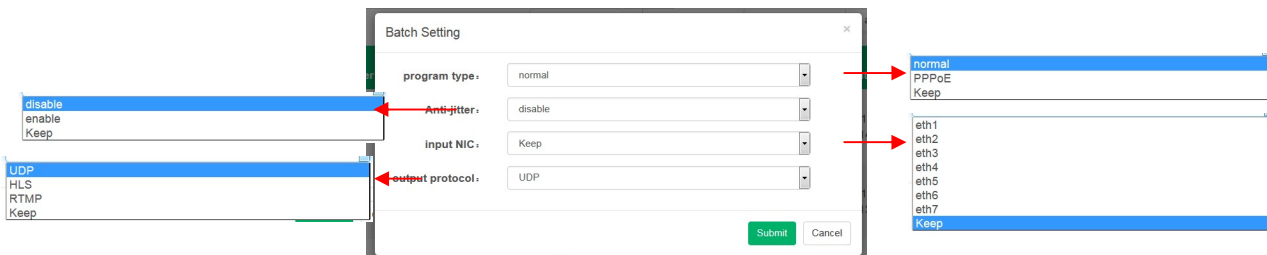![edit/delete icons] : Click to edit or delect programs

![start/stop buttons] : Click to start/stop/stop all the program distribution

![Batch Setting] : Click box in front of program number, and then click it to batch programs information as below box. "Keep" means keep the original program information
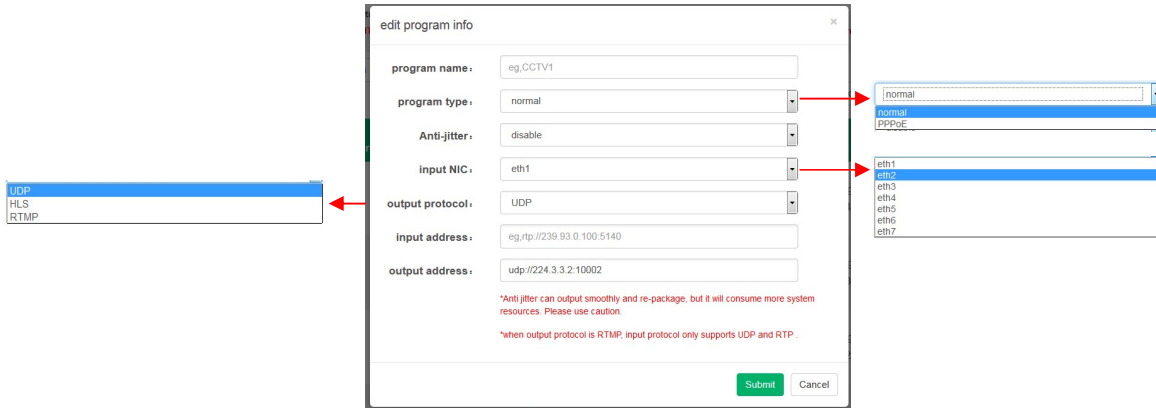

![template download / import programs / export programs] : Click to download the template for inputting program information and to batch import/export programs

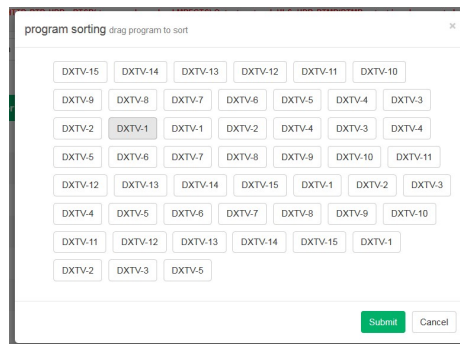![add program] : Click to add programs and edit program information as below box

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📱 batch delete : Click to batch delete programs

📋 program sorting : Click to sort programs manually by dragging program's name

Streaming Media→ HTTP

Clicking "HTTP", it displays the interface where users can set the HTTP parameters. HLS, HTTP and RTSP can't be converted into HTTP directly, but UDP and RTP can be converted into HTTP. The setting principle is same as "Protocol Conversion". (Figure-6)

Note: If users want to IP out over HTTP, they need to convert HLS/HTTP/RTSP into UDP/RTP, and then converting UDP/RTP into HTTP.
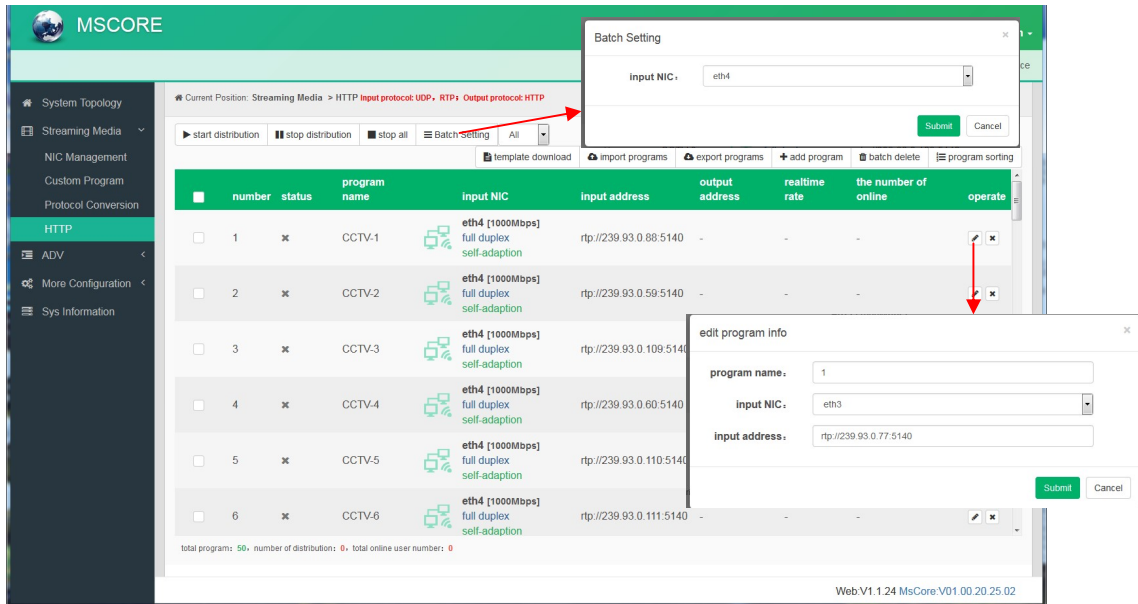
Figure-6

ADV→ Rolling Subtitles

ADV function is only applicable to IP out application and the STB and TV must be installed IPTV APK.

Clicking "Rolling Subtitles", it displays the interface where users can add rolling subtitles and set subtitles' parameters. After submitting, rolling subtitles will appear when playing programs. (Figure-7)
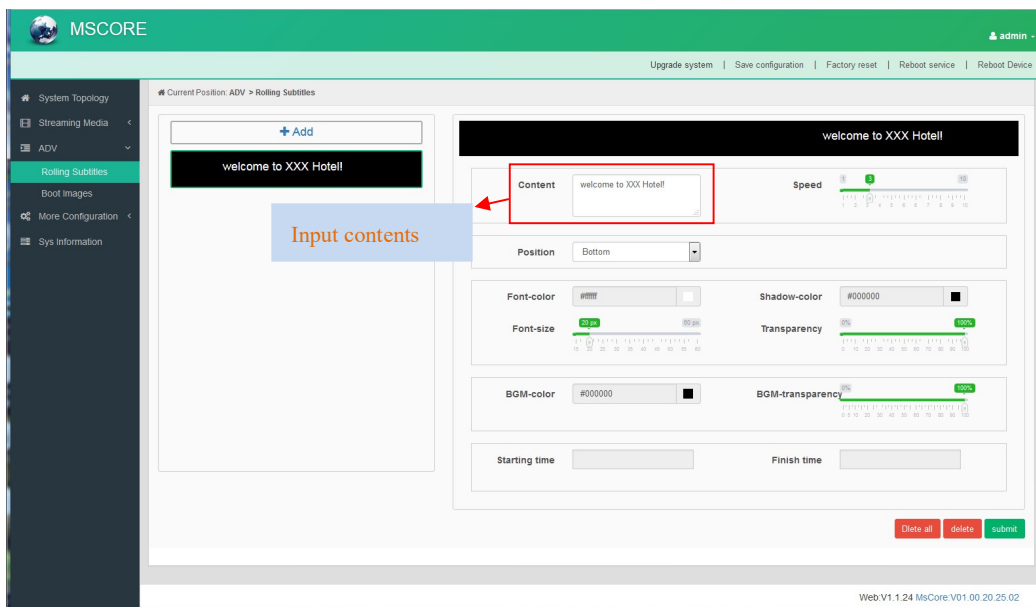

Figure-7

ADV→ Boot Images

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Clicking "Boot Images", it displays the interface where users can add boot images. Click "Add" and then upload it. After submitting, boot images will appear when starting IPTV APK. (Figure-8)
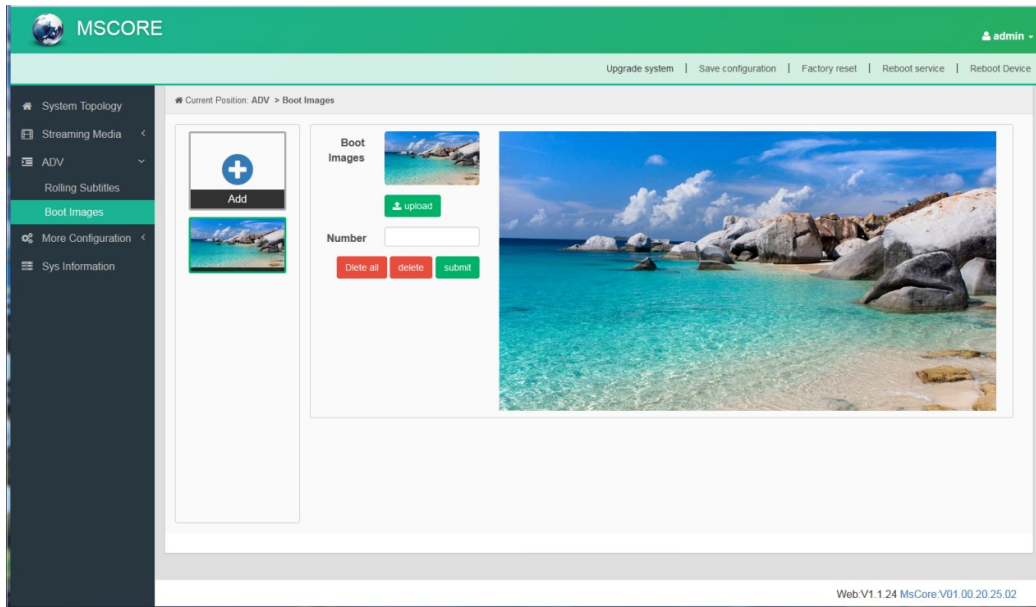

Figure-8

More Configuration→ System Set

Clicking "System Set", it displays the interface where users can select client protocol and Unicast output port, and set ADV parameters. (Figure-9)
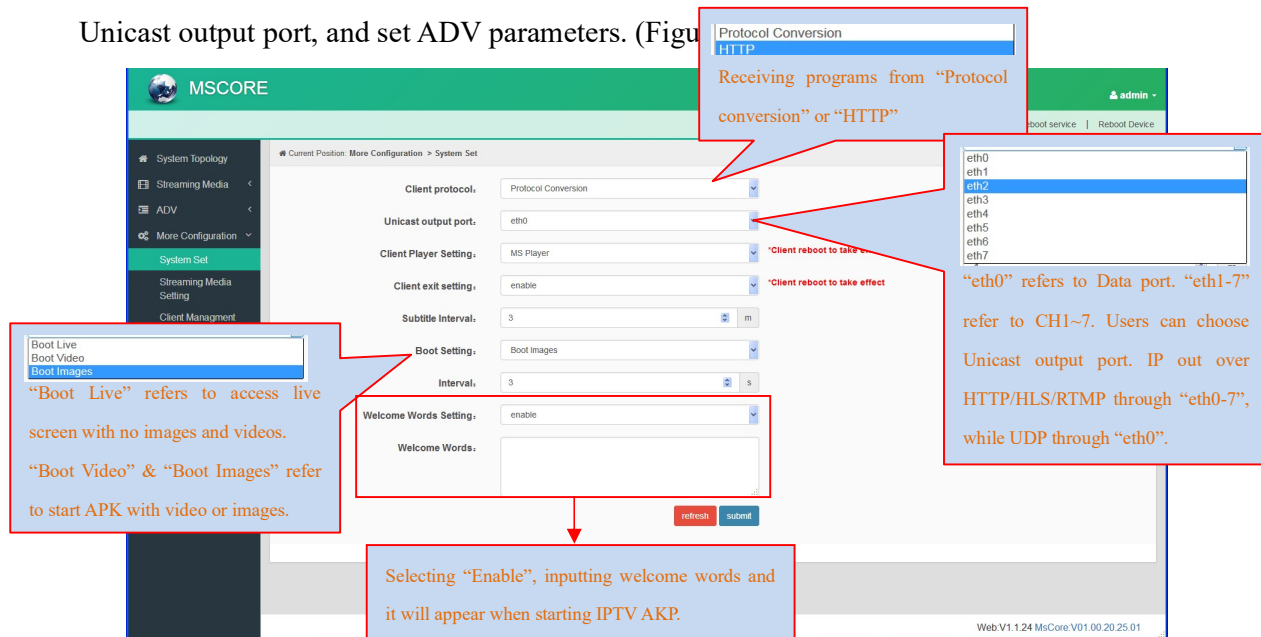

Figure-9

Select boot setting as "Boot Video" to upload boot video here and it will appear when starting IPTV APK. Suggest the size of video file doesn't over 500M.

More Configuration→ Streaming Media Setting

Clicking "Streaming Media Setting", it displays the interface where users can set streaming media parameters. (Figure-10)
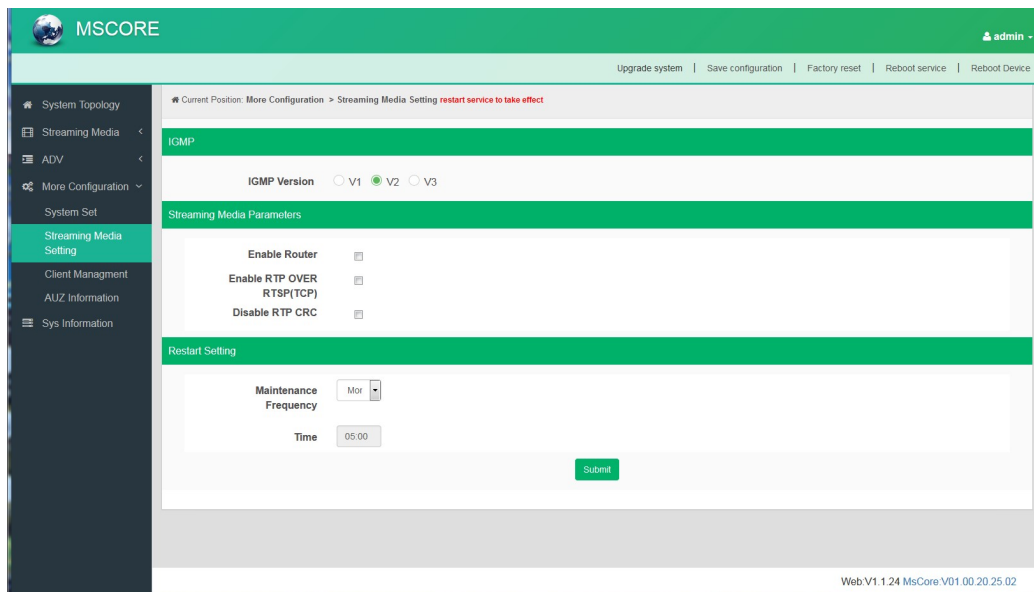

Figure-10

More→ Client Management

Clicking "Client Management", it displays the interface where users can download APK from this device and then upload it to STB and TV. (Figure-11)
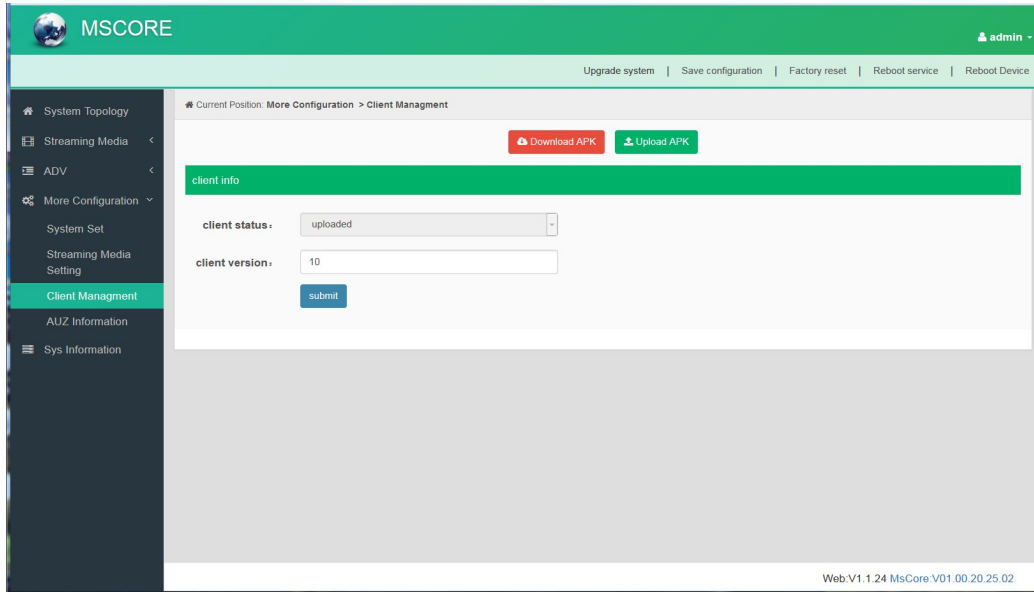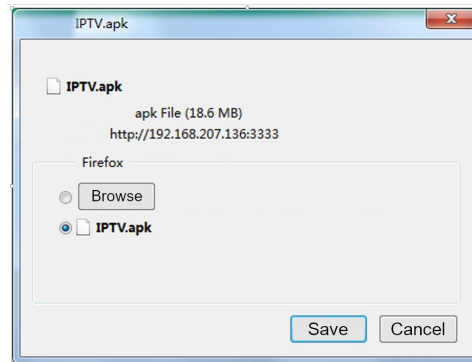
Figure-11

Clicking "Download APK", it will trigger a box as below (select saving pass) to save IPTV APK flie.

More→ AUZ Information

Clicking "AUZ Information", it displays the interface where users can check the authorization information. (Figure-12)
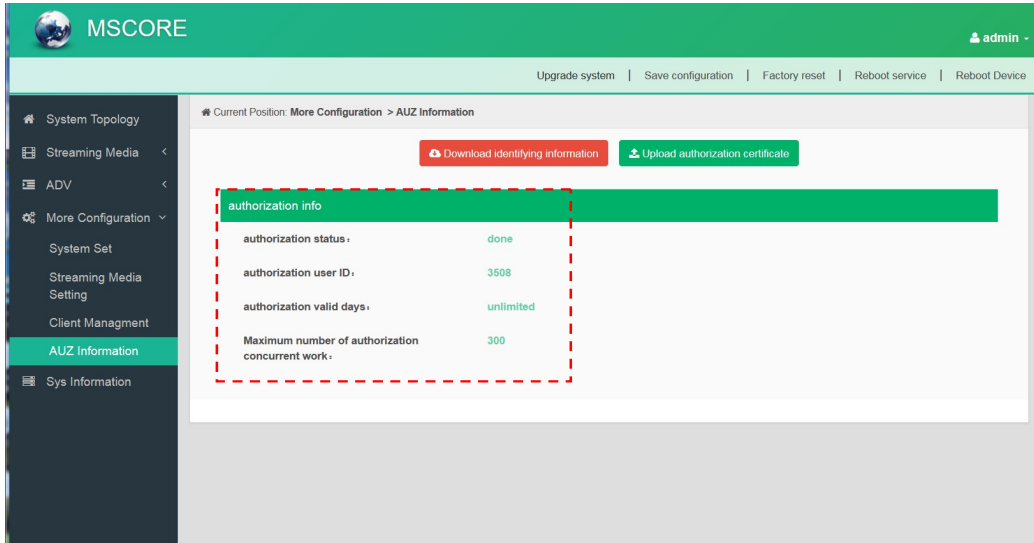
Figure-12

System Information

Clicking "System Information", it displays the interface where users can check the system information such as CPU usage rate, CPU usage record and so on. (Figure-13)
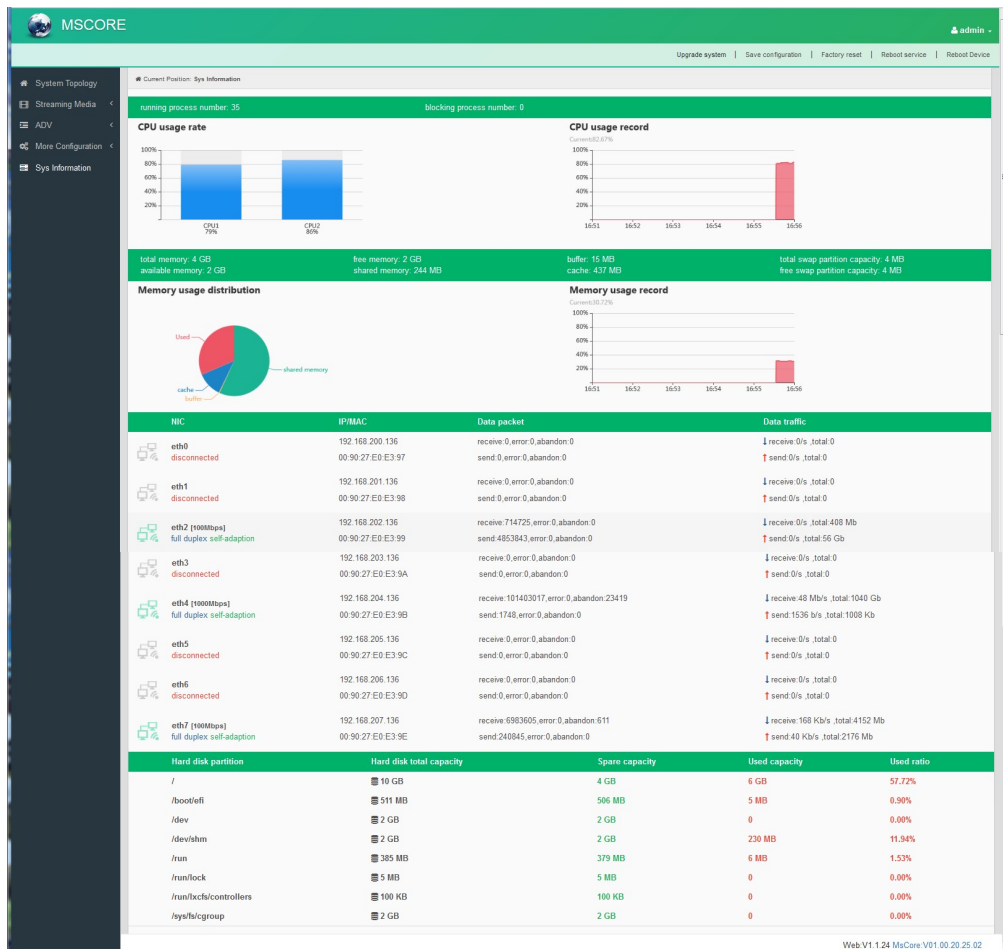

Figure-13

Chapter 4 Troubleshooting

H-IPTV-GATEWAY quality assurance system has been approved by CQC organization. For guarantee the products' quality, reliability and stability. All THOR 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 THOR. 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 ℃
- 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

For Further Tech Support

1-800-521-Thor(8467)

support@thorfiber.com