# Cygnus Contribution

## MediaKind CE Mini Version 1.0

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## USER GUIDE

Rev. B

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# Contents

**Legal & safety information . . . . . 6**

Product Warranty (2 years) . . . . . 6

Declaration of Conformity. . . . . 7

CE . . . . . 7

FCC Class A. . . . . 7

FM . . . . . 7

Warnings, Cautions and Notes . . . . . 8

Safety Precaution - Static Electricity . . . . . 9

Safety Instructions . . . . . 10

Support information . . . . . 12

**Chapter 1 Product Introduction . . . . . 13**

General Introduction. . . . . 14

Packing List. . . . . 15

Product Specifications . . . . . 16

Software Architecture. . . . . 18

Module board dimensions . . . . . 19

**Chapter 2 Installing the CE Mini . . . . . 20**

Connections. . . . . 21

Start working with the CE Mini . . . . . 23

Accessing the module across wired network using the web browser 23

Upgrading Firmware . . . . . 24

**Chapter 3 Web GUI ..... 25**

Live page ..... 26

System Page ..... 27

Initialize Page ..... 27

Time setting ..... 28

System Log ..... 28

Access Log ..... 29

Broadcast ..... 30

Wowza Live ..... 30

ESPxMedia ..... 31

Stream Settings Page ..... 32

Customize - Video Setting ..... 33

Protocols ..... 35

HLS Protocol ..... 35

RTP Protocol ..... 36

SRT Protocol ..... 37

TS over IP Protocol ..... 38

ZIXI Protocol ..... 39

Video/Audio ..... 41

Network settings ..... 42

Record settings ..... 44

OSD ..... 45

**Chapter 4 How to stream ..... 46**

RTSP/RTP ..... 47

Open RTSP streaming from VLC ..... 47

Open RTP streaming from VLC ..... 48

MPEG-TS ..... 50

RTMP ..... 53

Youtube .....53
Facebook .....53
HTTP Live Streaming.....55
Zixi Live Streaming .....56

**Appendix 1 Hardware/Software Support List .....57**
CE Mini video encoding performance .....58

# Legal & safety information

## Product Warranty (2 years)

MediaKind warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for two years from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by MediaKind, or which have been subject to misuse, abuse, accident or improper installation. MediaKind assumes no liability under the terms of this warranty as a consequence of such events.

Because of MediaKind's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an CE Mini product is defective, it will be repaired or replaced at no charge during the warranty period. For out- of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, MediaKind products used, other hardware and software used, etc.) Note anything abnormal and list any onscreen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

# Declaration of Conformity

## CE

This product has passed the CE test for environmental specifications when shielded cables are used for external wiring. We recommend the use of shielded cables. This kind of cable is available from MediaKind. Test conditions for passing included the equipment being operated within an industrial enclosure. In order to protect the product from being damaged by ESD (Electrostatic Discharge) and EMI leakage, we strongly recommend the use of CE-compliant industrial enclosure products. Please contact your local supplier for ordering information.

## FCC Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

## FM

This equipment has passed the FM certification. According to the National Fire Protection Association, work sites are classified into different classes, divisions and groups, based on hazard considerations. This equipment is compliant with the specifications of Class I, Division 2, Groups A, B, C and D indoor hazards.

# Warnings, Cautions and Notes

To avoid personal injury or property damage, before you begin installing the product, read, observe, and adhere to all of the following safety instructions and information. The following safety symbols may be used throughout the documentation and may be marked on the product and/or the product packaging.

| | |
|---|---|
| **CAUTION** | Indicates the presence of a hazard that may cause minor personal injury or property damage if the CAUTION is ignored.<br>Cautions are included to help you avoid damaging hardware or losing data. e.g. there is a danger of a new battery exploding if it is incorrectly installed. Do not attempt to recharge, force open, or heat the battery. Replace the battery only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions. |
| **WARNING** | Indicates the presence of a hazard that may result in serious personal injury if the WARNING is ignored. |
| **NOTE** | Notes provide optional additional information. |

# Safety Precaution - Static Electricity

Follow these simple precautions to protect yourself from harm and the products from damage.

- To avoid electrical shock, always disconnect the power from your PC chassis before you work on it. Don't touch any components on the CPU card or other cards while the PC is on.
- Disconnect power before making any configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.Safety Instructions

# Safety Instructions

1. Read these safety instructions carefully.
2. Keep this User Manual for later reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
4. For plug-in equipment, the power outlet socket must be located near the equipment and must be easily accessible.
5. Keep this equipment away from humidity.
6. Put this equipment on a reliable surface during installation. Dropping it or letting it fall may cause damage.
7. The openings on the enclosure are for air convection. Protect the equipment from overheating. DO NOT COVER THE OPENINGS.
8. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
9. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
10. All cautions and warnings on the equipment should be noted.
11. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
12. Never pour any liquid into an opening. This may cause fire or electrical shock.
13. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
14. If one of the following situations arises, get the equipment checked by service personnel:
15. The power cord or plug is damaged.
16. Liquid has penetrated into the equipment.
17. The equipment has been exposed to moisture.
18. The equipment does not work well, or you cannot get it to work according to the user's manual.

19. The equipment has been dropped and damaged.
20. The equipment has obvious signs of breakage.
21. DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THE STORAGE TEMPERATURE MAY GO BELOW -20° C (-4° F) OR ABOVE 60° C (140° F). THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.
22. CAUTION: DANGER OF EXPLOSION IF BATTERY IS INCORRECTLY REPLACED. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER, DISCARD USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.
23. The power supply cord(s) must be plugged into socket-outlet(s) that is/are provided with a suitable earth ground.

The sound pressure level at the operator's position according to IEC 704-1:1982 is no more than 70 dB (A).

# Support information

It is not allowed to perform installation or modification of any software on the appliance as it could impact its proper functioning and could limit the warranty.

You may contact us for specific projects requiring customized options or specific development, available through our service organization.

For contact information, see the MediaKind website at http://www.mediakind.com.

If you have support questions, contact your MediaKind regional support or send an email to your Sales contact.

MediaKind Support contacts: **support@mediakind.com**

Chapter 1

# Product Introduction

# General Introduction

With video streaming thriving recently, new concepts such as social media and live streaming are gaining popularity among video professionals. The CE Mini is able to leverage the ubiquity of mobile networks and the flexibility of over-the-top delivery without jeopardizing the video quality by providing a professional-grade HEVC engine that can be easily integrated as a portable broadcasting solution. The CE Mini is a great and powerful module to opens new online media opportunities enabling live event streaming even in the most challenging scenarios where a traditional outside broadcasting setup is not a feasible option.

The CE Mini is a small, low power, real-time encoding module based on Ambarella's video compression technology which supports HD resolution with HEVC and AVC codecs.

It captures video content through the SDI or HDMI inputs then encodes the video content with the dedicated encoder engine. The encoded video content can be streamed to the cloud server with several protocols such as RTSP, RTMP or even HLS. The CE Mini can create multiple output streams from a single video input and encode it individually by using different codecs with different resolutions.

The CE Mini offers a user-friendly HTTP interface and can be remotely controlled by using a web-based Common Gate Interface (CGI). It supports multiple streaming protocols that commonly used by CDNs, which make it easier for users to deliver their video over-the-top.

# Packing List

Before starting installation, please make sure that the following items have been shipped:

- 1 CE Mini
- 1 power adapter
- 1 Quick Start Guide

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

# Product Specifications

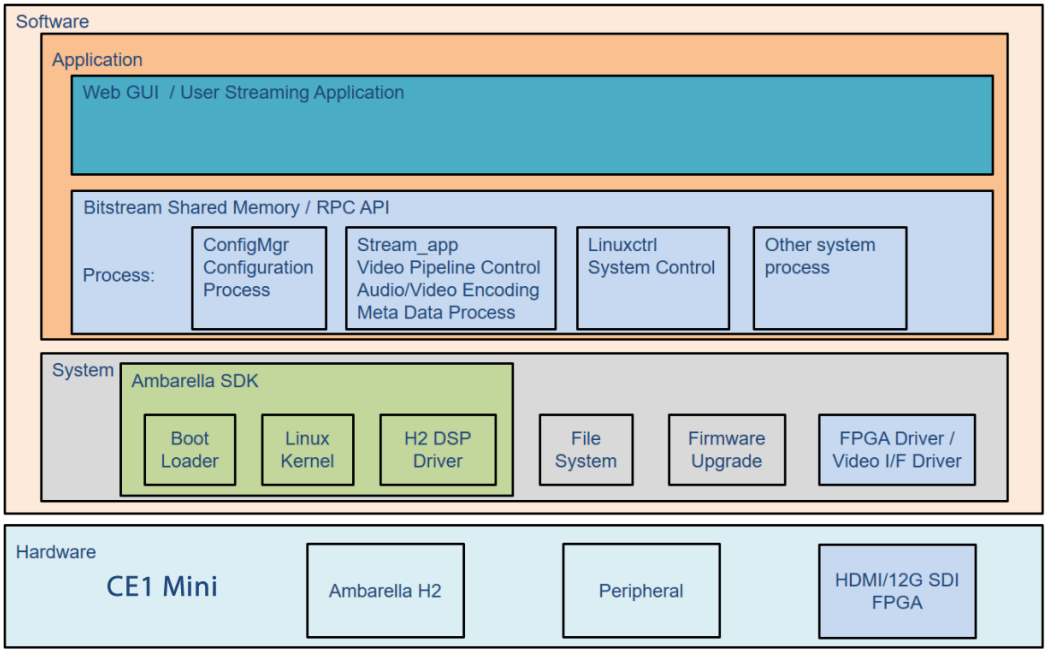
| | | |
|---|---|---|
| **Video Input Format** | **Channels/interface** | 1x 3G-SDI or HDMI 2.0 |
| | **Video formats** | **HDMI 2.0 Interface**<br>1920x1080: 60p/59.94p/50p/30p/29.97p/25p/24p<br>1920x1080: 60i/59.94i/50i<br>1280x720: 60p/59.94p/50p<br>**Mini-BNC (3G-SDI) Interface**<br>1920x1080: 60p/59.94p/50p/30p/29.97p/25p<br>1920x1080: 60i/59.94i/50i<br>1280x720: 60p/59.94p/50p/30p/29.97p/25p |
| **Compression** | **Compression** | HEVC (H.265) / AVC (H.264) |
| | **AVC or HEVC profile** | AVC BP/MP/HP Level 5.1<br>HEVC Main Level 5.1 |
| | **HEVC tier** | Main |
| | **Bitrate** | 64kbps~32Mbps |
| | **Bit depth** | 8, 10 bit (HEVC only) |
| | **Chroma sampling format** | 4:2:0 |
| | **Bit rate control** | CBR |
| **Audio Input & Compression** | **Channels** | Line-In: stereo<br>3G-SDI: 4 stereo<br>HDMI: 4 stereo |
| | **Audio compressing format** | AAC-LC, AAC-HE, AAC-HEv2 |
| | **Sampling rates** | HDMI/SDI: 44.1/48Khz-16bit<br>Line in: 32/44.1/48Khz-16bit |
| **Self View** | **Video output frame** | PAL |

| | | |
|---|---|---|
| **Video Stream Features** | **Dynamic video stream resolution change** | Yes |
| | **Streaming protocol** | RTSP/RTP/RTMP/HLS/TS over IP/SRT/NDI HX2 (option) |
| | **GOP definition** | I, IP, IPB, IBBP |
| **Module Characteristic** | **Operation System** | Embedded Linux |
| | **Management & Control Interface** | Remote from Web GUI interface |
| | **Power Consumption** | 10.7W |
| | **Power Input** | DC12V |
| | **System Dimension** | 130 x 48x 94.1(mm) |
| **Environmental** | **Operating Temperature** | 0 to 40 degrees Celsius |
| | **Non-operating Temperature** | -40 to 70 degrees Celsius |
| | **Operating Humidity** | 50 to 95% (non-condensing) |
| | **Non-operating Humidity** | 50 to 95% (non-condensing) |

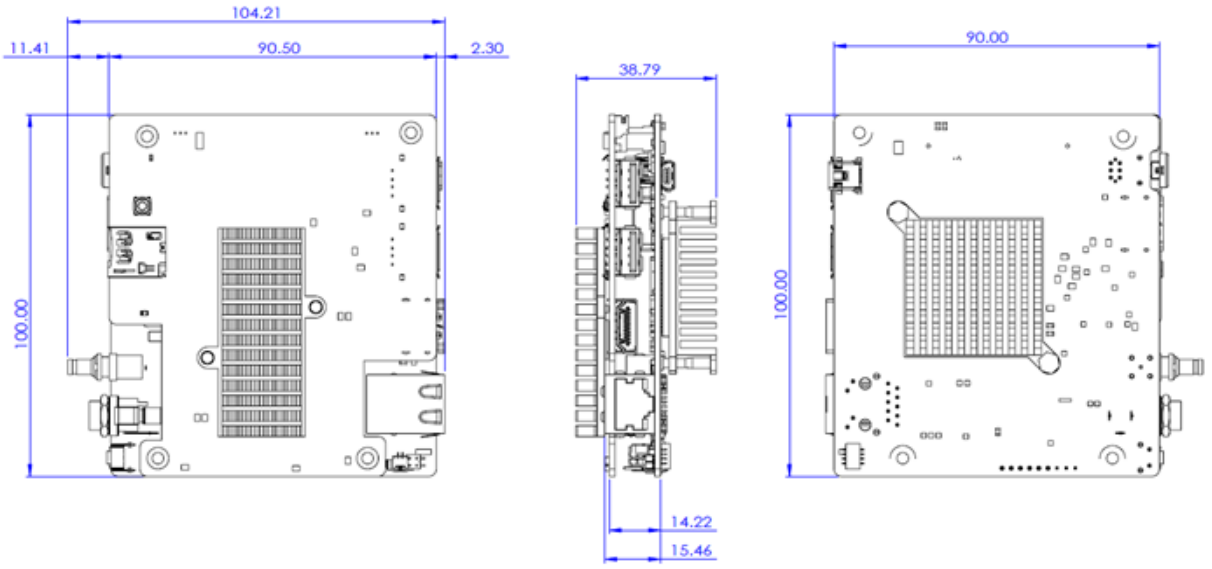
# Software Architecture

The CE Mini provides a web GUI to control encode, stream, record and other parameters. Below is the software architecture for reference.

Figure 1. Software architecture



# Module board dimensions



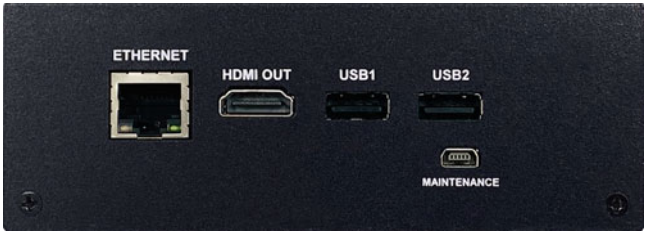
Chapter 2

# Installing the CE Mini

# Connections

Figure 1. CE Mini front view

Figure 2. CE Mini rear view




Follow the steps below:

1. On the front panel (see (SDI input)):
   a. Connect a video source to SDI or HDMI video inputs.
   b. Connect the power adapter to the power jack.

**NOTE** When powered on, the power LED is Blue.

2. On the rear panel (see Figure 4):
   a. Connect the LAN cable to the Internet HUB.

**NOTE** Please make sure your PC's LAN cable is also connected to the HUB as well (If you want your PC to serve as a decoder)

   b. Connect your USB flash drive to the USB1 or USB2 for the recording function.

Figure 3. Front panel connections (SDI input)

Figure 4. Rear panel connections

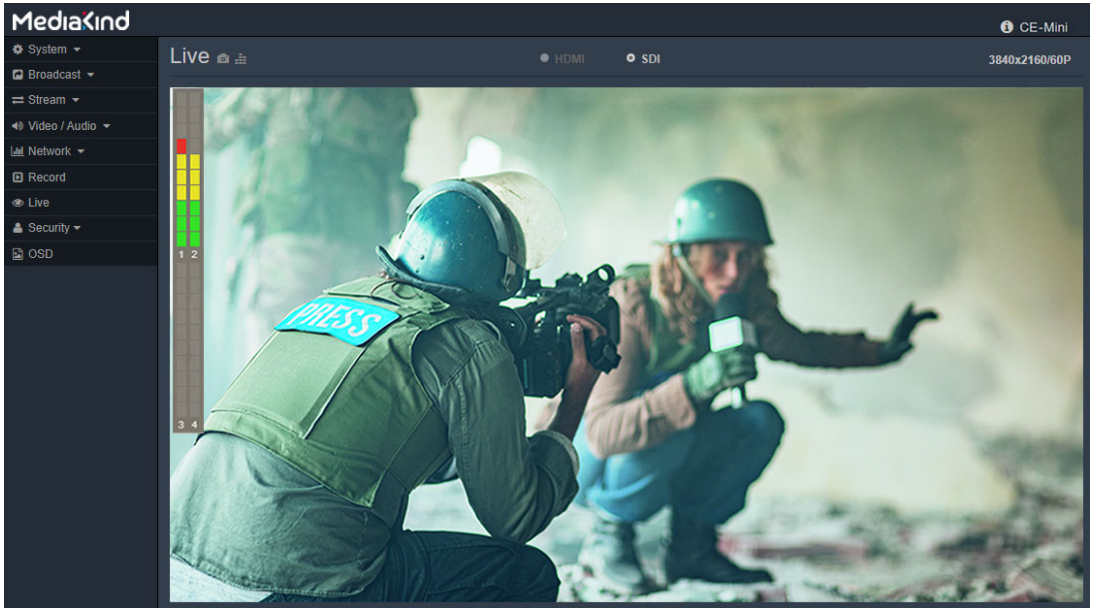
# Start working with the CE Mini

## Accessing the module across wired network using the web browser

1. The default IP address of the Ethernet port is 192.168.1.10.
   Please setup your PC to the same domain to connect the CE Mini (192.168.1.x).
2. Start the web browser on your PC and type in **192.168.1.10** in the URL address bar.
3. Enter username and password to login Web UI.

**NOTE** Default username is **admin** and default password is **admin**.

4. The Live page should be displayed as below.



# Upgrading Firmware

The firmware can be automatically updated by connecting a USB flash drive to the CE Mini using the USB port.

1. Prepare an empty USB flash drive (FAT32).
2. Download or get firmware file from your MediaKind contact.
3. Copy the firmware file, **`cemini_XXXX.upd.xz`** to the root directory of your USB flash drive.
4. Power-off the CE Mini, insert your USB flash drive to the CE Mini and remove other devices (LAN and video input source, except the power adapter).
5. Power-on the CE Mini, the firmware upgrading will start automatically.
6. Once upgrade is completed, the power button LED will stop blinking and remains in green.

**NOTE** Please remember to remove the USB flash drive.

7. Execute a power cycle by using the power button.
8. Check the software version from web, **System>Information >Software version**.

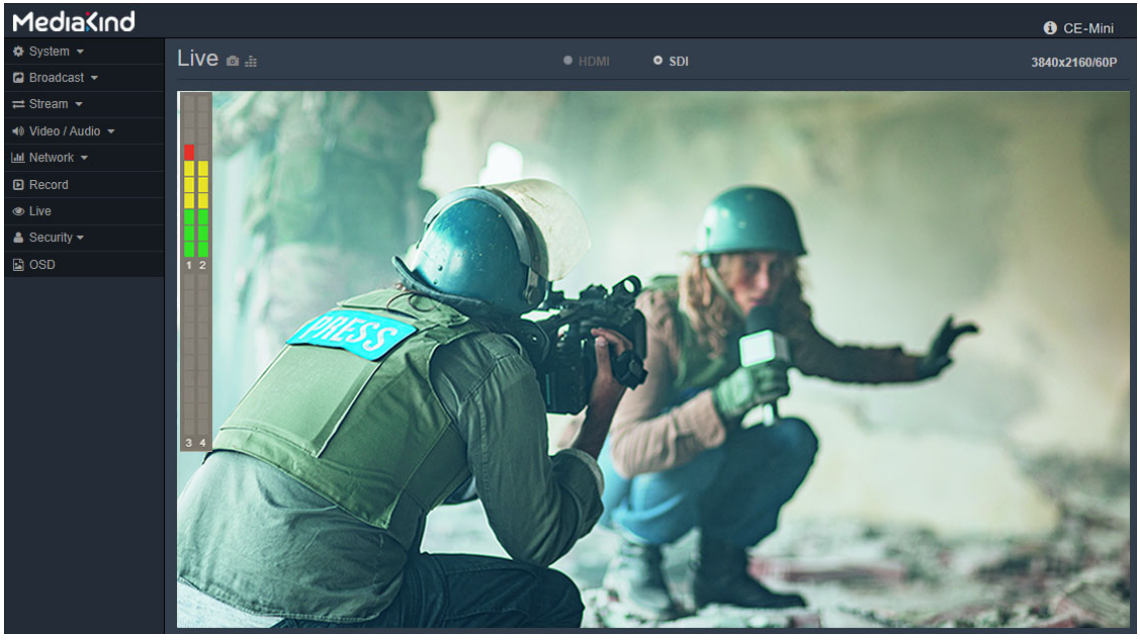
**NOTE** You can also use the web GUI to upgrade firmware, please refer to "Initialize Page" on page 27.

Chapter 3

# Web GUI

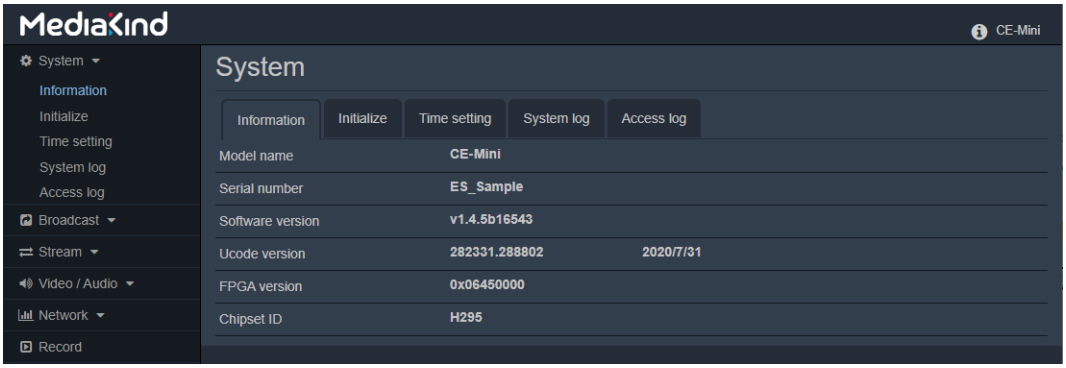
# Live page

Live page displays current screen from video source. It can be selected to get video source from SDI or HDMI. Right-up corner shows current detected resolution. It also provides the control of Snapshot, full-screen and audio energy bars at left-up side.



# System Page

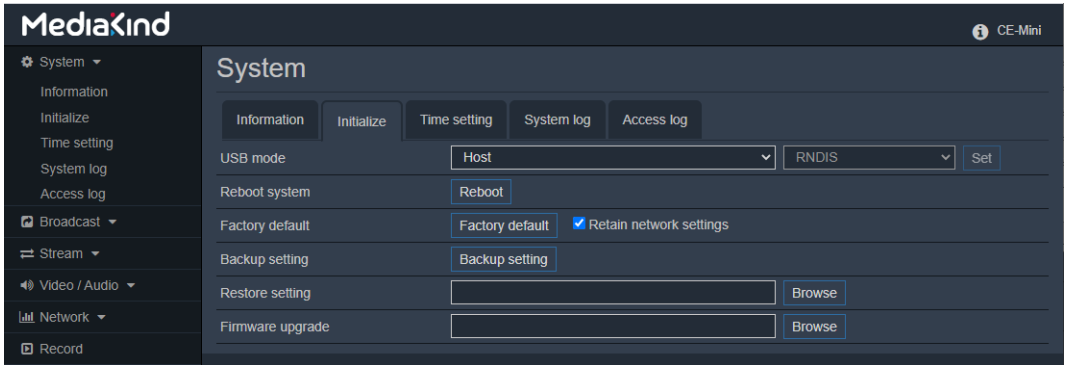
The **System** page includes the **Information**, **Initialize**, **Time setting**, **System log** and **Access log** sub-menus.




**Information** page includes **Model name**, **Serial number** and **Software version**

## Initialize Page

This page provides options to restore factory default or backup setting to system and upgrade system firmware.

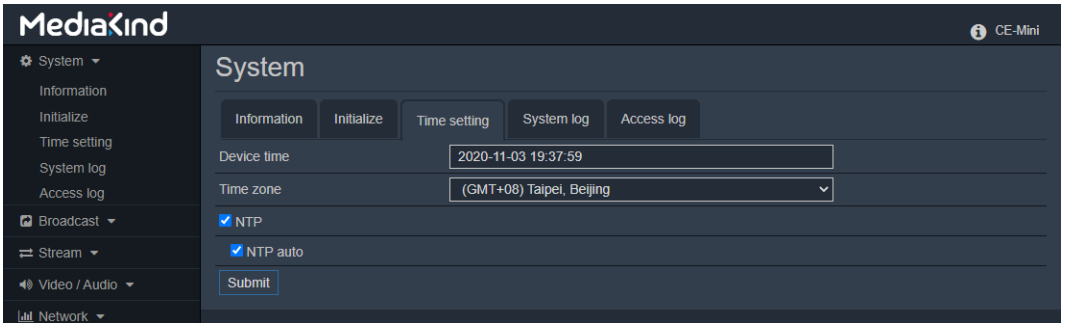



**NOTE** You can use **Firmware upgrade** function to upgrade firmware. Once upgrade is complete, system will reboot automatically.

# Time setting

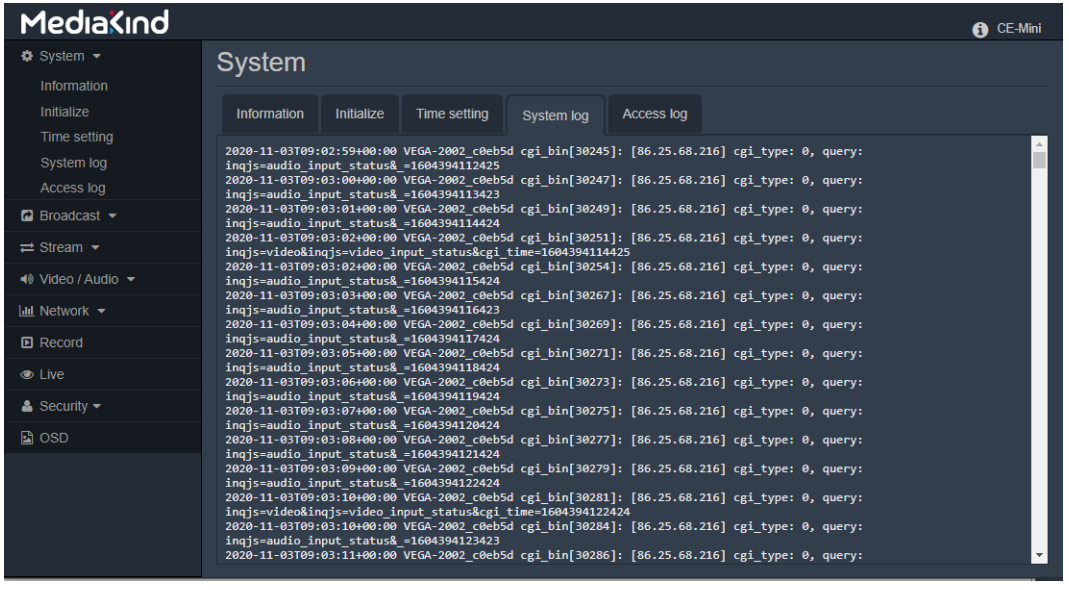
Set the system clock:

- You can set the system clock manually:
  Enter the date and time (format: `MMDDhhmmYYYY`) and select tthe ime zone.
- You can synchronize system clock to Network Time Protocol (NTP):
  Tick the **NTP** checkbox to set the NTP server and time zone.



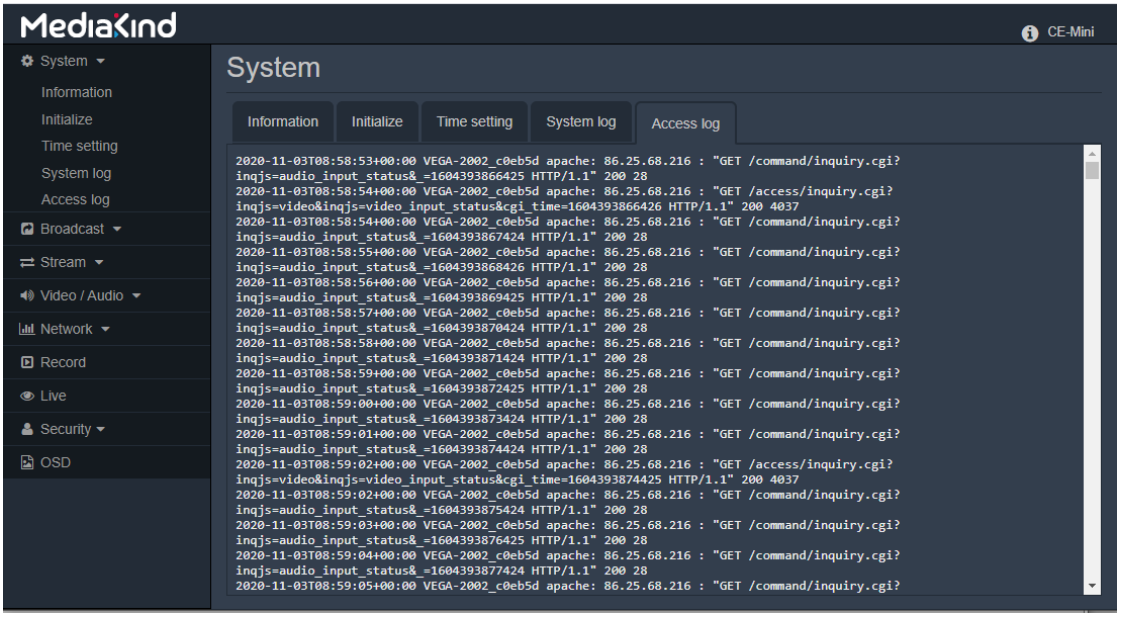

# System Log

Shows the system log messages.



# Access Log

Shows the web access logs from GUI/CGI command.



# Broadcast

## Wowza Live

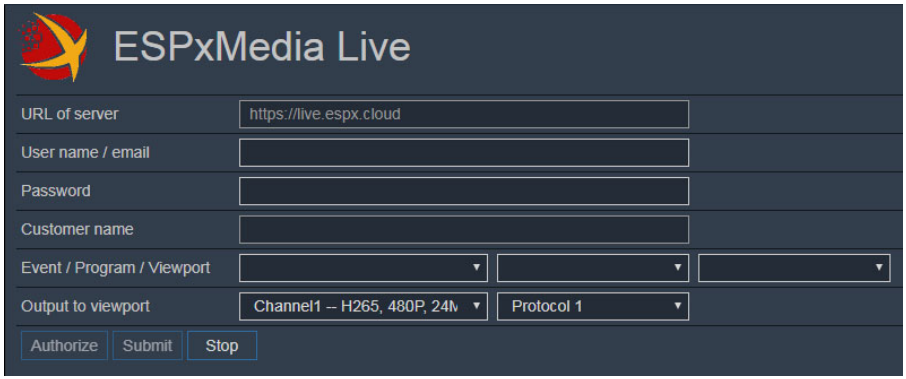
CE Mini supports Wowza live streaming protocol. You can fill parameters to setup streaming to your targeted Wowza streaming service.

Below are the descriptions for each field:

| Field | Description |
|---|---|
| **URL of server** | The URL of Wowza media server. |
| **Port** | The available port of Wowza media server. |
| **User name** | Set the username for login your targeted Wowza media server. |
| **Password** | Set the password. |
| **Application** | Set the application name of your RTMP. |
| **Stream** | Set the stream name of your RTMP. |
| **Output** | Select the streaming source. |

# ESPxMedia

The CE Mini support ESPxMedia live streaming protocol. You can fill parameters to link ESPxMedia streaming service.




Press **Authorize** to start authorization of the username/email and password first, then press **Submit** to start sending the selected encoding configuration in **Output to viewport** to ESPxMedia service.

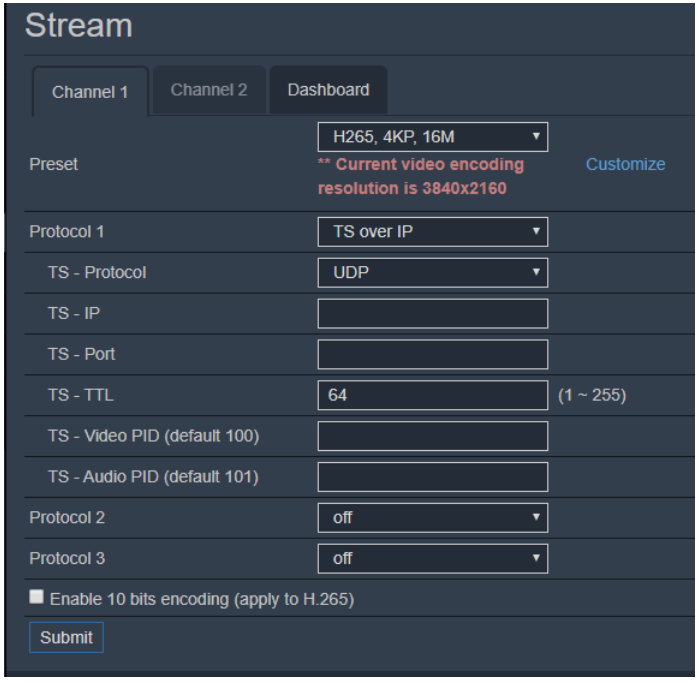
| Field | Description |
|---|---|
| **URL of server** | The URL of ESPxMedia server. |
| **User name / email** | Set the username or email account. |
| **Password** | Set the password. |
| **Customer name** | Set the customer name. |
| **Event / Program / Viewport** | Select the streaming destination, where queried from ESPxMedia. |
| **Stream** | Set the stream name of your RTMP. |
| **Output to viewport** | Select the streaming source. |

# Stream Settings Page

Use this **Stream** page to set the encoding setting (**Preset** and **Customize**) and protocols (**Protocol 1**, **Protocol 2** and **Protocol 3**) for output Channel1/ Channel2.

Each Channel has only one **Preset/Customize** setting and there are up to three protocols in each channel, this means that one encoding setting can be transmitted by 3 different protocols.

The capabilities of each stream depend on the input resolution and the frame rate, please refer to Appendix 1 for details.



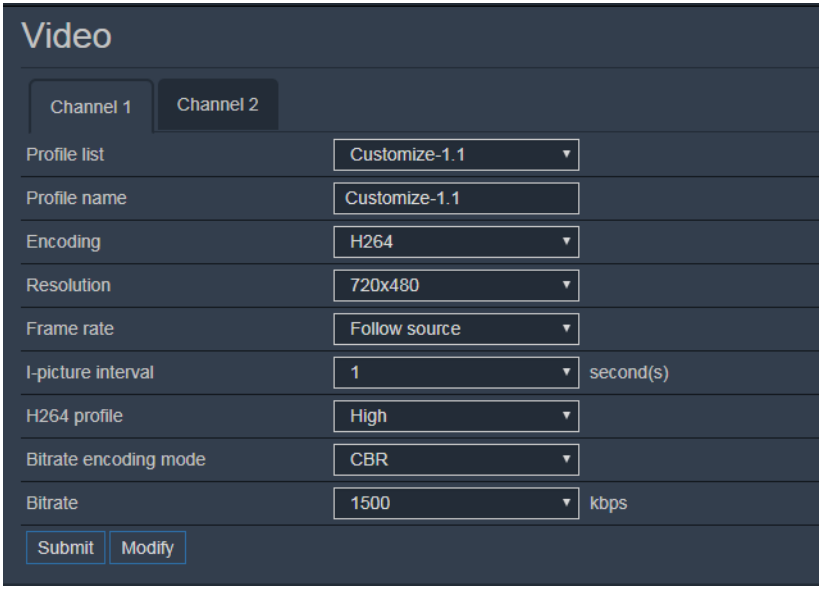

Encoding setting can be changed by **Preset** or **Customize** field.
There are several predefined encoding settings in **Preset**.
If the preset menu is unable to meet your demand, the **Customize** setting can set the individual options. (Please refer to "Customize - Video Setting" on page 33")

| Field | Description |
|---|---|
| **Preset** | The **Preset** menu provides predefined encoding settings. |
| **Customize** | If the preset menu is unable to meet your demand, the **Customize** setting can set the individual options. (Please refer to the “3.4.1 Preset – Customize Video Setting”) |

Then user-specified encoding setting can be transmitted by different protocols, **Protocol 1 / Protocol 2 / Protocol 3**, each protocol in this channel can have its own streaming method. Please refer to "Protocols" on page 35 for details of streaming protocol.

## Customize - Video Setting

This menu provides alternative encoding setting, if the predefined setting in preset menu is unable to meet your requirements, the **Customize** setting have the individual options for detailed parameters.

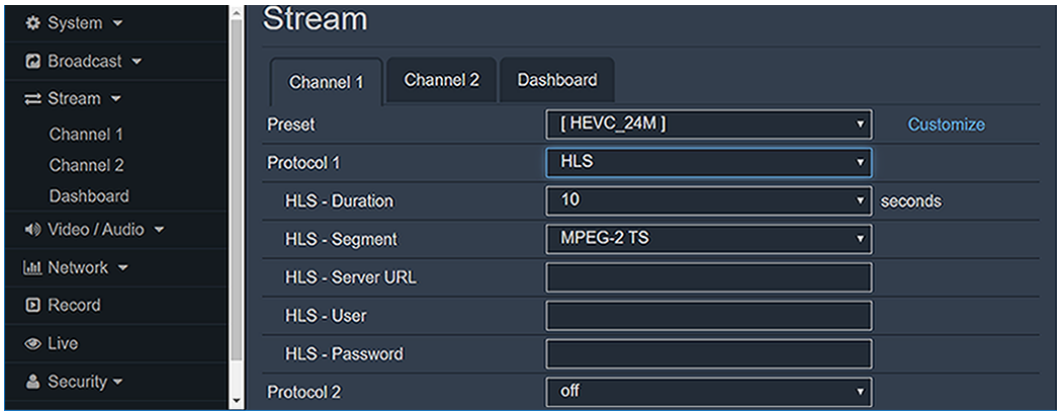


| Field | Description |
|---|---|
| **Profile list** | List of customized settings. The profile name specified by user will be listed here. |
| **Profile name** | Name specified by user for customized encoding setting. |
| **Encoding** | Encoder type, Select **H.265**, **H.264** or **off**.<br>**NOTE:** Channel 1 cannot be turned off. |
| **Resolution** | Select the resolutions of the encoded output stream. The CE Mini will be scaled according to the setting. |
| **Frame rate** | Set the frame rate of the output stream. |
| **I-picture interval** | Set the I-picture insertion interval in seconds. |
| **H264 Profile** | Set the profile setting for H.264 to high, main or baseline if H.264 is selected. |
| **Bit rate encoding mode** | Only **CBR** is available. |
| **Bit rate** | When you set **Image codec** to **H.265/H.264** and set **Bit rate compression mode** to **CBR**, the target bit rate of the output stream can be set. |

# Protocols

## HLS Protocol

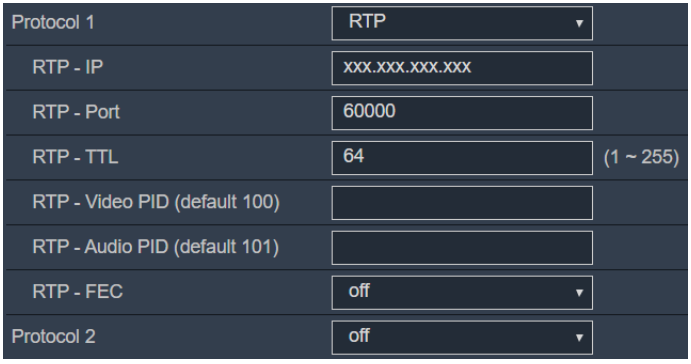
This module either provides HLS streaming as a server with limited connections or has the ability to upload segmented stream to another HLS streaming server.




| Field | Description |
|---|---|
| **HLS - Duration** | Set the target segment length in seconds.<br>Default value is 10.<br>Segment will be cut on the next key frame after this time has passed. |
| **HLS-Segment** | **MPEG-2 TS**<br>Output segment files in MPEG-2 Transport Stream format. This is compatible with all HLS versions.<br>**fMP4**<br>Output segment files in fragmented MP4 format, similar to MPEG-DASH. fmp4 files may be used in HLS version 7 and above. |
| **HLS-Server URL** | URL of HLS server. |
| **HLS-User** | User name of HLS server. |
| **HLS-Password** | Password of HLS server. |

# RTP Protocol

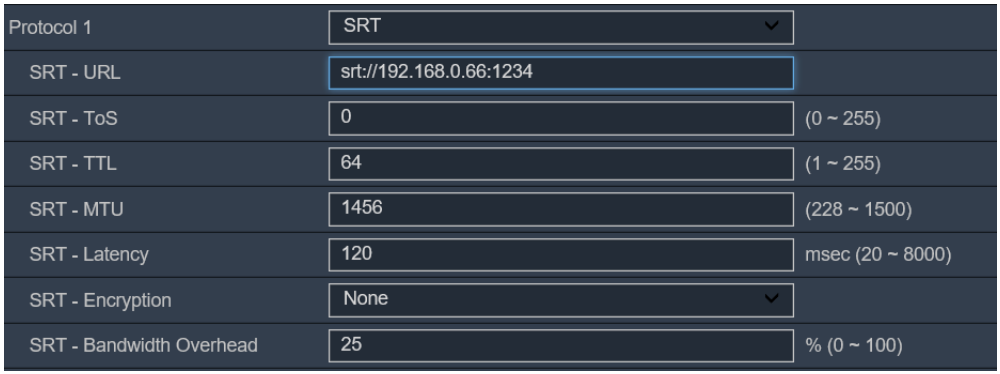
The CE Mini provides end-to-end transport via RTP protocol which is used to transport media data over UDP. Once the setting is submitted, the CE Mini will send data to the target device.




| Field | Description |
|---|---|
| **RTP – IP** | Target IP address. |
| **RTP – Port** | **MPEG-2 TS**<br>Output segment files in MPEG-2 Transport Stream format. This is compatible with all HLS versions.<br>**fMP4**<br>Output segment files in fragmented MP4 format, similar to MPEG-DASH. fmp4 files may be used in HLS version 7 and above. |
| **RTP – TTL** | Time to Live (TTL) for RTP packets sent over the network. |
| **RTP – Video PID** | Setting video Packet ID |
| **RTP – Audio PID** | Setting audio Packet ID |
| **RTP – FEC** | 2D parity-check Forward Error Correction mechanism for MPEG-2 Transport Streams sent over RTP. |
| **RTP - FEC Matrix of L** | The number of columns (4-20, LxD <= 100) |
| **RTP - FEC Matrix of D** | The number of rows (4-20, LxD <= 100) |

## SRT Protocol

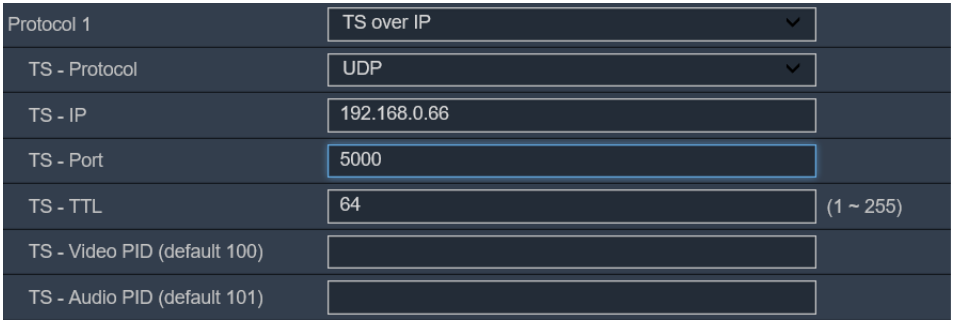
The CE Mini supports SRT streaming to SRT Server, you can use client software to connect to the SRT Server to receive the CE Mini audio and video data.




| Field | Description |
|---|---|
| **SRT - URL** | Specify the URL of SRT server (ex. srt://192.168.0.66:1234). |
| **SRT – ToS** | Type of service (0 ~ 255).<br>ToS field could specify a datagram priority and request a route for low-delay, high-throughput, or highly-reliable service. |
| **SRT – TTL** | Time to live (1 ~ 255).<br>Limits the lifespan or lifetime of data in a computer or network. |
| **SRT – MTU** | Maximum transmission unit (228 ~ 1500). |
| **SRT – Latency** | the round-trip time between encoder and ingest server, in ms (20 ~ 8000) |
| **SRT – Encryption** | Select encryption options: NONE, AES128, AES192, AES 256. |
| **SRT - Bandwidth Overhead** | Specify how much bandwidth above the estimate bandwidth the SRT can use when recovering lost packets. |

## TS over IP Protocol

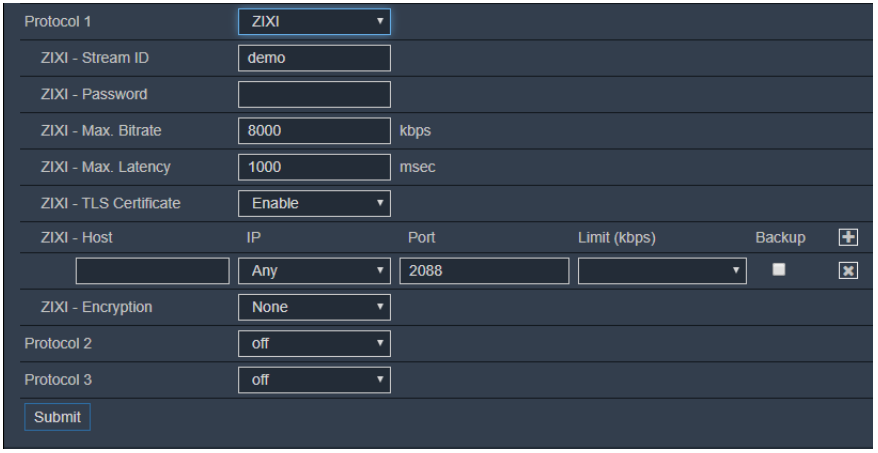
CE Mini supports TS protocol, users can use client software to receive CE Mini audio and video data




| Field | Description |
|---|---|
| **TS – Protocol** | The TS-protocol can select tcp or udp. |
| **TS – IP** | Specify a client IP to receive streaming |
| **TS – Port** | Specify the client port, client can use this to receive streaming |
| **TS – TTL** | Time to live (1 ~ 255).<br>Limits the lifespan or lifetime of data in a computer or network, When a packet passes through a router, its survival time will be reduced by one |
| **TS - Video PID (default 100)** | Packet Identifier, describing the payload data. |
| **TS - Audio PID (default 101)** | Packet Identifier, describing the payload data. |

# ZIXI Protocol

The CE Mini provides ZIXI protocol which is a software-based platform enabling reliable transmission of broadcast-quality HD video globally over unmanaged Internet connections and private IP networks.




| Field | Description |
|---|---|
| **ZIXI – Stream ID** | Specify the unique stream ID for this ZIXI stream. |
| **ZIXI – Password (Optional)** | If needed, enter the string for ZIXI Broadcaster server authentication. |
| **ZIXI – Max. Bitrate** | Specify the expected maximum bitrate for the stream. Default: 8000. |

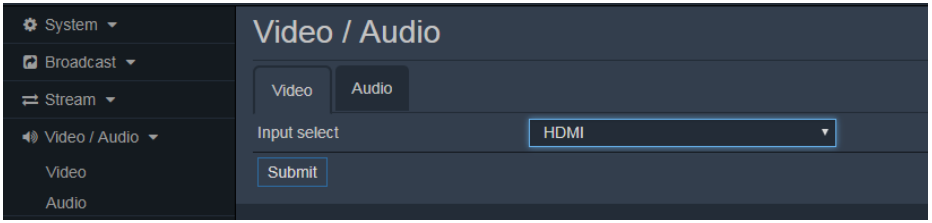
| Field | Description |
|---|---|
| **ZIXI – Max. Latency** | Specify the maximum number of milliseconds that ZIXI Broadcaster could protect the stream. Default: 1000. |
| **ZIXI – TLS Certificate** | Enable or disable Transport Layer Security (TLS) certificate for this ZIXI stream. |
| **ZIXI – Host** | Specify the IP Address of the ZIXI Broadcaster server. |
| **ZIXI – Port** | Specify the port to listen on which the ZIXI Broadcaster receives the stream from another ZIXI Broadcaster server. Default: 2088. |
| **ZIXI – Encryption Type** | Specify the type of encryption (AES 128/192/256) for the ZIXI Broadcaster server. |
| **ZIXI – Encryption Key** | Enter the encryption key of the type (AES 128/192/256) for the ZIXI Broadcaster server. |

# Video/Audio

Use this **Video/Audio** page to set the video and audio details for the active stream.

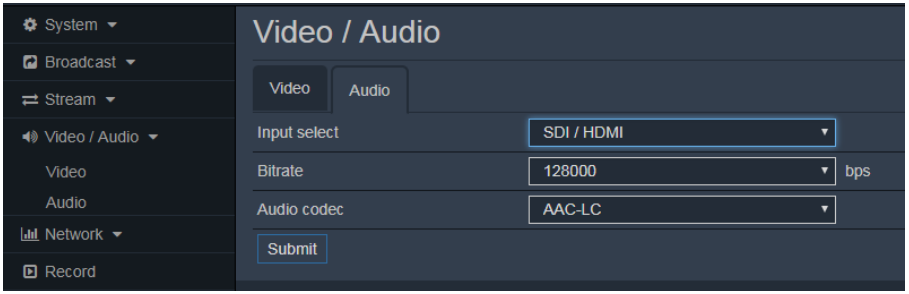
1. **Video stream:**

- **Input Select**
  You can set either **SDI** or **HDMI** as input for video stream.




2. **Audio Stream:**

- **Input Select**
  You can set either **SDI/HDMI** or **External Audio Jack** as input for the audio stream.
- **Sample Rate**
  You can set the sample rate of audio stream.
- **Audio Codec**
  You can set the bit rate of audio stream.

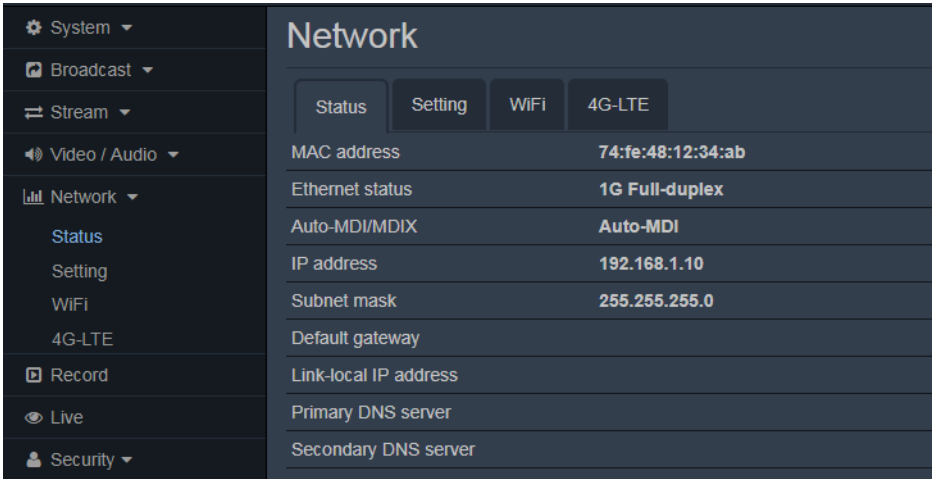


# Network settings

Use the **Network** page to configure the network settings.

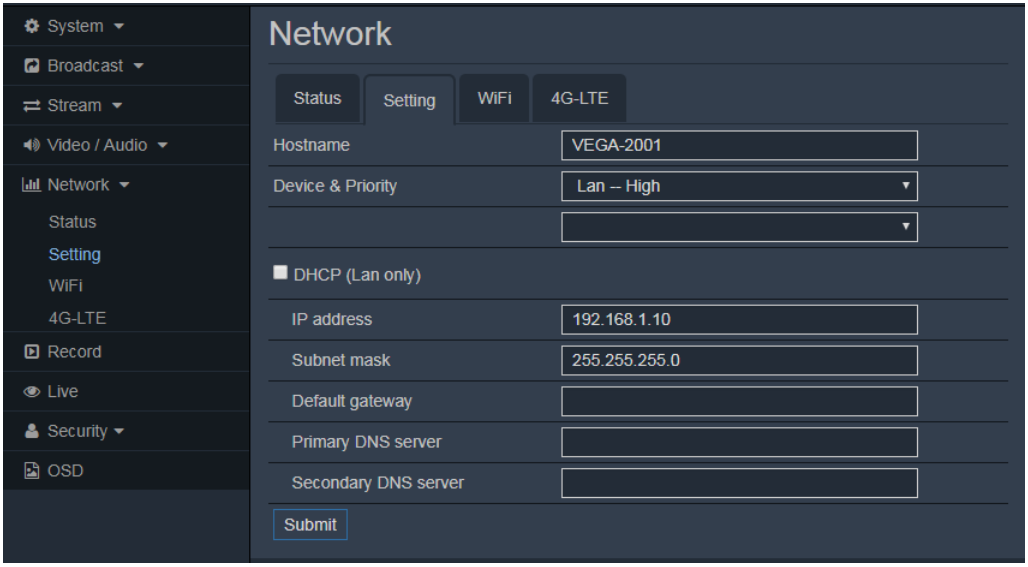
3. **Status**

   Show the network status including MAC Address, Ethernet Status, Auto-MDI/MDIX, IP Address, Subnet Mask, Default Gateway, LinkLocal IP address, Primary DNS Server and Secondary DNS Server.




4. **IPv4 Setting**

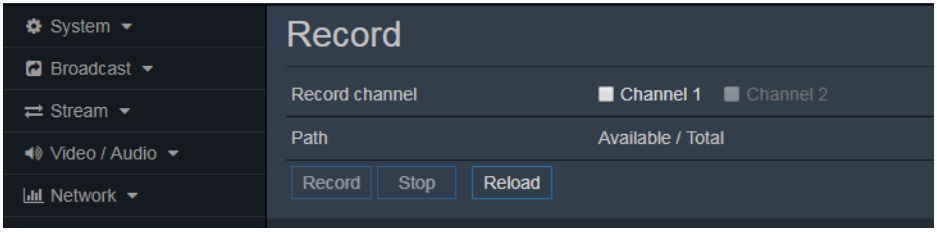
   - To get IP settings automatically, please tick the **DHCP** checkbox to obtain the IP address automatically.
   - To specify an IP address, fill in the following parameters: **IP address**, **Subnet mask** and **Default gateway**.


System
Broadcast
Stream
Video / Audio
Network
Status
Setting
WiFi
4G-LTE
Record
Live
Security
OSD
Network
Status
Setting
WiFi
4G-LTE
Hostname
VEGA-2001
Device & Priority
Lan -- High
DHCP (Lan only)
IP address
192.168.1.10
Subnet mask
255.255.255.0
Default gateway
Primary DNS server
Secondary DNS server
Submit

# Record settings

Use this **Record** page to record Channel1/ Channel 2.

- **Record Channel**
  The default video setting is Channel 1(H265) / Channel 2(Off).
- **Storage Path**
  You can insert a USB flash drive and press the **Reload page** button. It will show the information of the storage.

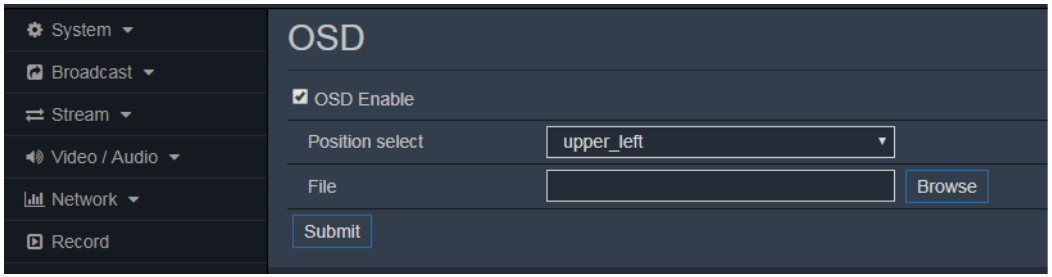



- **Record**
  Press the **Record** button to start recording.
- **Stop**
  Press the **Stop** button to stop recording.

# OSD

**NOTE** This feature is under Development.

Use this **OSD** page to set OSD in streaming of Channel 1.




You can check the **OSD Enable** to upload OSD file and set the position of OSD.

**NOTE** OSD file only supports `*.bmp` 24/32 bit and maximum size of OSD file is 2M.

Chapter 4

# How to stream

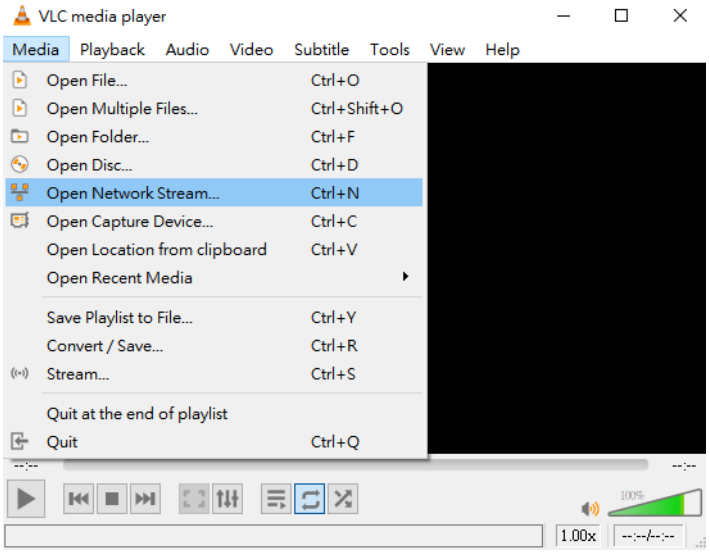
# RTSP/RTP

**NOTE** Please make sure that SDI or HDMI cable is connected to CE Mini correctly before starting, RTSP streaming will execute automatically.

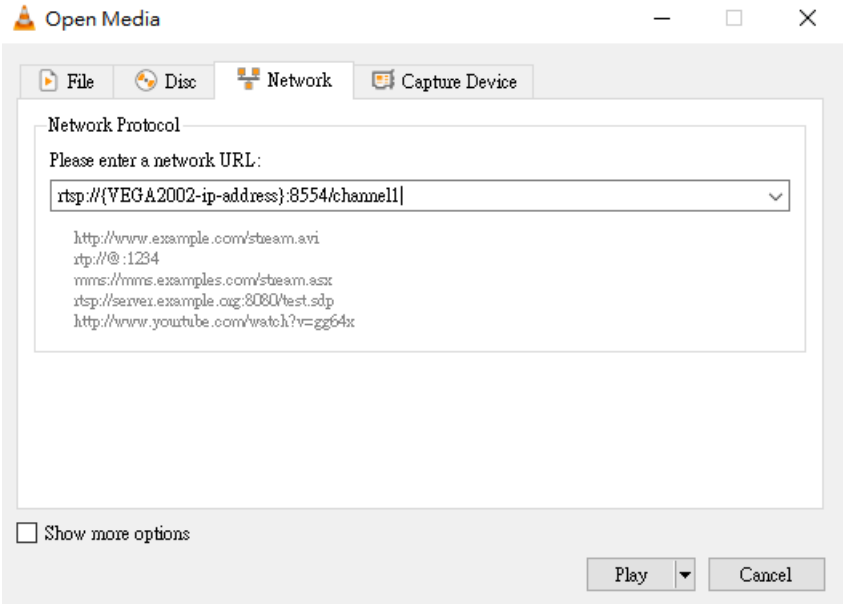
## Open RTSP streaming from VLC

This section shows how to open RTSP streaming from VLC on a suitable player.

1. **Open Network Stream** from VideoLAN VLC media player.



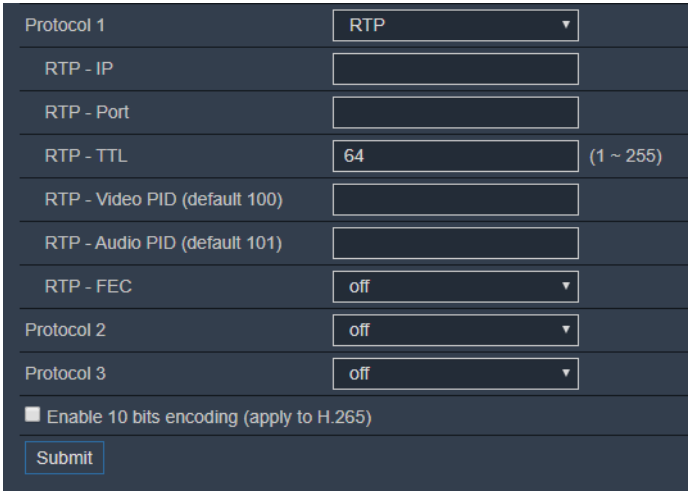

2. Use this URL to launch VLC program for RTSP streaming video/audio:
rtsp://{CE Mini-ip-address}:8554/channel1



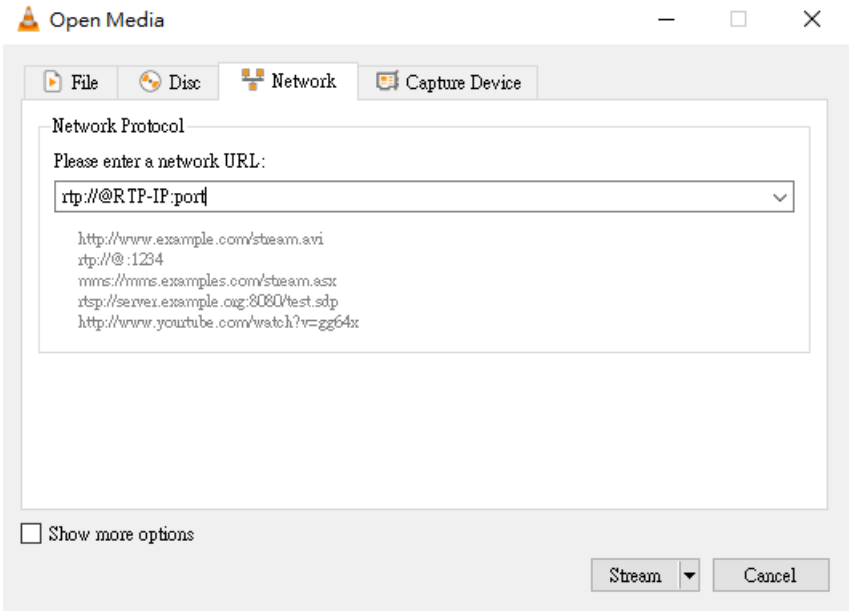

# Open RTP streaming from VLC

This section shows how to open RTP streaming from VLC on a suitable player.

1. From the CE Mini web GUI, setup RTP on the **Stream** page.



2. Use this URL to launch VLC program for RTSP streaming video/audio:
rtp://@RTP-IP:port

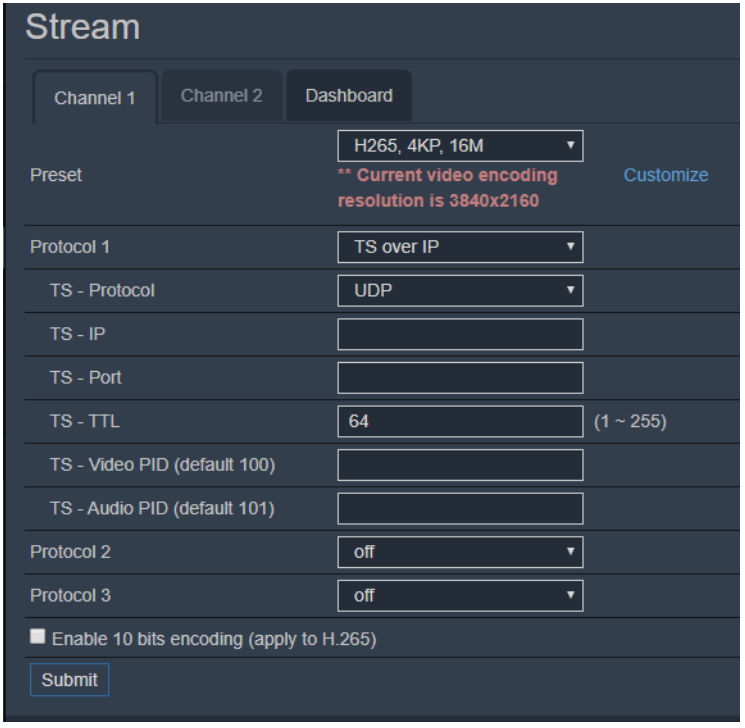


# MPEG-TS

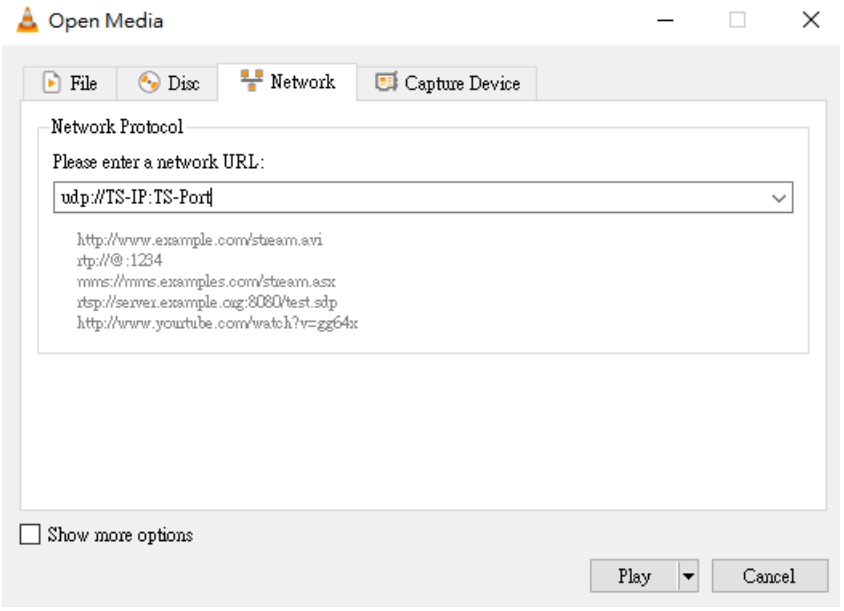
This section shows how to play MPEG-TS from VLC player.

**NOTE** Please make sure that SDI or HDMI is connected to the CE Mini correctly before starting.

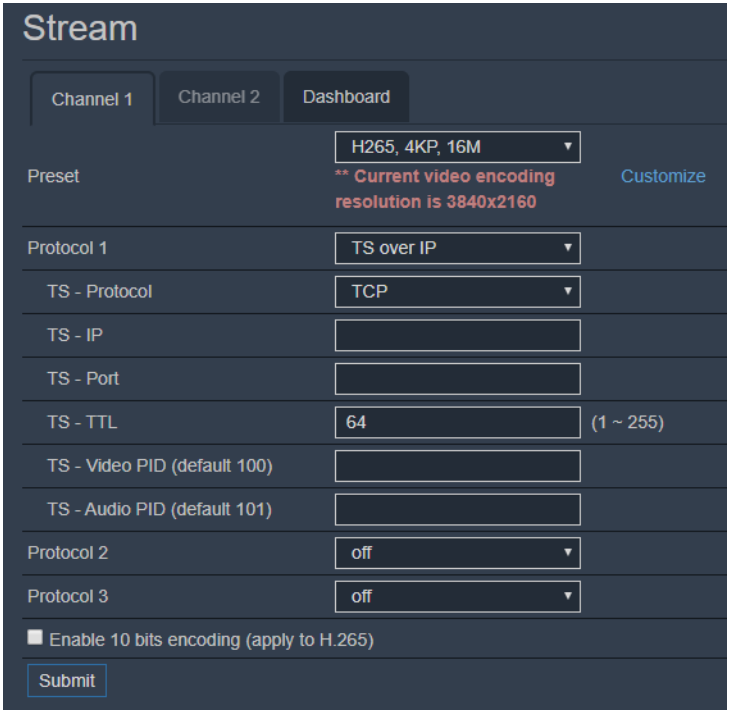
1. From the **Stream** page of the CE Mini web GUI, setup the **TS–Protocol** (**UDP**).



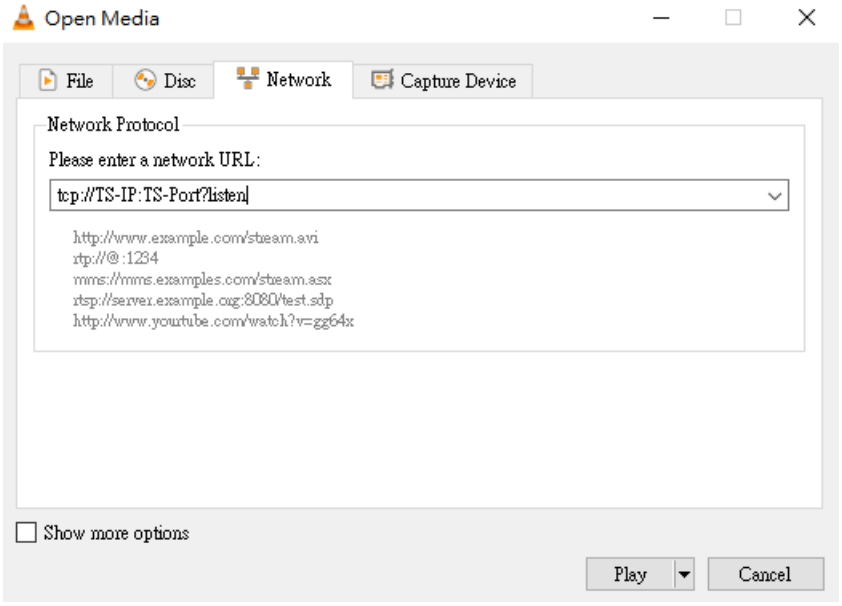

2. Use this URL to launch VLC program for UDP streaming video/audio.
udp://TS-IP:TS-Port




3. From the CE Mini web GUI, setup the **TS–Protocol** (**TCP**).



4. Use this URL to launch VLC program for TCP streaming video/audio.
tcp://TS-IP:TS-Port?listen




**NOTES**

**TS-IP** stands for PC IP.

Multicast UDP streaming Address: 224.0.0.0 to 239.255.255.255.

Please change Network setting to **DHCP** for Multicast stream.

# RTMP

This section shows how to play stream your video using RTMP as the steaming protocol to the YouTube and Facebook.

**NOTES**

Please make sure that SDI or HDMI is connected to CE Mini correctly before starting.

HEVC is not supported in flv. Only H.264 is supported.

## Youtube

1. YouTube Dashboard: https://www.youtube.com/live_dashboard
2. You will get the following:
   - Server URL: "rtmp://a.rtmp.youtube.com/live2"
   - Stream name/key: "xxxx-xxxx-xxxx-xxxx"
3. From the CE Mini web GUI, fill in the corresponding **RTMP Key** and **RTMP URL** on the **Stream** page.

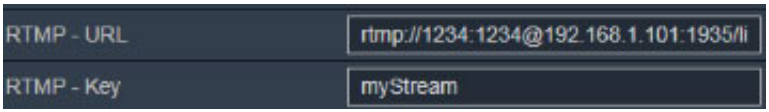
4. Click the **Submit** button.
5. You can start streaming your video content to YouTube Live.

## Facebook

1. How to Broadcast from your Computer using Facebook Live
   https://www.facebook.com/live/create
2. Press **Facebook Live** Button and broadcast on Facebook Live.
3. Click the **Continue** button.
4. You will get the following:

- Server URL:
  tmps://live-api-s.facebook.com:443/rtmp/
- Stream name/key:
  xxxxxxxxxxxxxxxx?ds=1&a=xxxxxxxxxxxxxxxx

5. From the CE Mini web GUI, fill in the corresponding **RTMP Key** and **RTMP URL** on the **Stream** page.




6. Click the **Submit** button
7. You can start streaming your video to the Facebook Live.

# HTTP Live Streaming

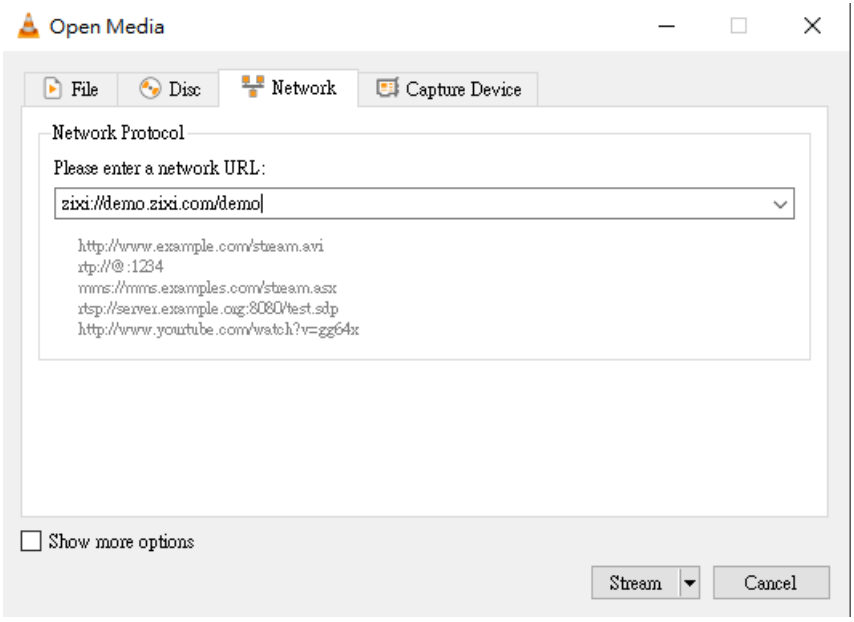
HTTP Live Streaming (HLS) is an HTTP-based media streaming communications protocol implemented by Apple Inc. as part of its QuickTime, Safari, OS X, and iOS software. It operates by breaking the overall stream into a sequence of small HTTP-based file downloads, each download loading one short chunk of an overall potentially unbounded transport stream.

**NOTE** HEVC is not supported in flv. Only H.264 is supported.

1. Use this URL to open HLS:
   http://192.168.1.10/hls/channel1.m3u8 on iOS.
2. You will get the HLS.

# Zixi Live Streaming

1. If you use VLC as receiver, please refer to the note below to install the VLC Player.
2. Run VLC and open the **Media** menu.
3. Select **Stream** to open launch the **Open Media** window.
4. Select **Network** then fill in zixi://demo.zixi.com/demo as ZIXI host URL.




**NOTE** You can follow the Zixi VLC Plugin Setup Guide for installation and setup: https://zixidocumentation.atlassian.net/wiki/spaces/ZVPSG/pages/7667745/Installing+the+VLC+Player+and+the+Zixi+VLC+Plug-In

Appendix 1

# Hardware/Software Support List

# CE Mini video encoding performance

This section described the overall encoding performance limitations of the CE Mini. Each table shows maximum bitrate, encoding resolution and number of streaming outputs in different input resolution.

These tables are evaluated and tested by MediaKind, please follow these tables to configure your CE Mini.

You could also use our Dashboard, **Stream>Dashboard**, to know if specified settings work normally.

Table 1. Input source: 1080p 60/50

| Outputs | Channel1 | Channel2 |
|---|---|---|
| 1 streaming | 1920x1080 (60fps) @10bit 32Mbps | 1920x1080 (60fps) @10bit 16Mbps |
| 2 streaming | 1920x1080 (60fps) @10bit 24Mbps | 1920x1080 (60fps) @10bit 16Mbps |
| 3 streaming | 1920x1080 (60fps) @10bit 16Mbps | 1920x1080 (60fps) @10bit 16Mbps |

Table 2. Input source: 720p 60/50

| Outputs | Channel1 | Channel2 |
|---|---|---|
| 1 streaming | 1280x720 (60fps) @10bit 32Mbps | 1280x720 (60fps) @10bit 16Mbps |
| 2 streaming | 1280x720 (60fps) @10bit 32Mbps | 1280x720 (60fps) @10bit 16Mbps |
| 3 streaming | 1280x720 (60fps) @10bit 32Mbps | 1280x720 (60fps) @10bit 16Mbps |