# **AVerMedia SE510 User Manual**

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#### Disclaimer

All the images in this documentation are examples only. The images may vary depending on the product and software version. Information presented in this documentation has been carefully checked for reliability; however, no responsibility is assumed for inaccuracies. The information contained in this documentation is subject to change without notice.

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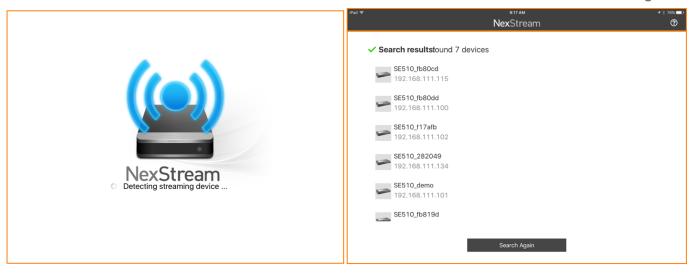
# **NexStream**

SE510 comes with NexStream application to help locating SE510 on the network and access to management website. If the IP address of SE510 is known, use web browser to connect to the web management. IE (version 11 and above), Firefox, Chrome and Safari browsers are supported.

## NexStream for iPad and Android Tablet

NexStream is available on Apple App Store and Google Play Store. Search for "NexStream" in App Store or Play Store and download to install. The tablet version provides an all-in-one management to access all functions of SE510 in one application.

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Click on any of the found SE510 icon will bring up the management interface.



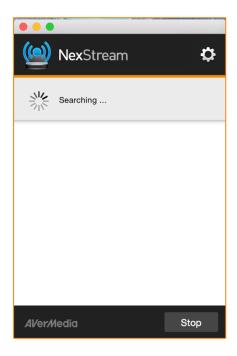
## NexStream for Mac OS and Windows

NexStream for Mac OS and Windows is available for download from the AVerMedia website. Please visit our SE510 product page and download from the Software section. Mac OS and Windows versions provide a simple finder function that opens default web browser to access the management website.

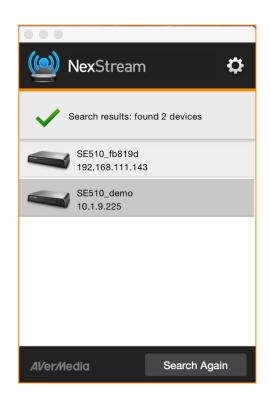
Launch NexStream after installation.



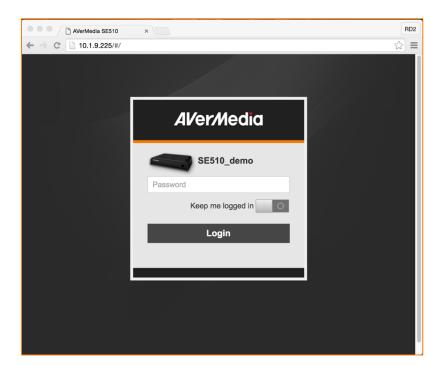
Click on "Begin Search" to start searching for SE510 on the network.



If an SE510 is found, its IP address will be displayed for selection.



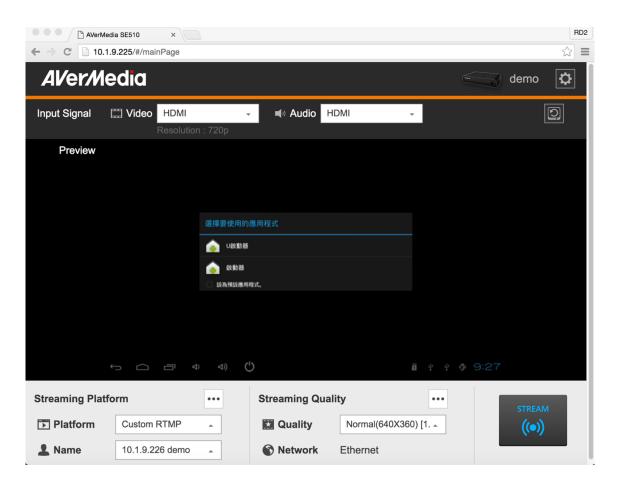
Click on the SE510 icon will bring up a browser to management website.



# **Main Page**

### **Preview**

The main page of SE510 is dominated by the video preview. This presents the video and audio from input source, so you can adjust the camera position and settings before streaming. Another way to preview is to connect a HDMI TV or LCD display to the HDMI-out of SE510.

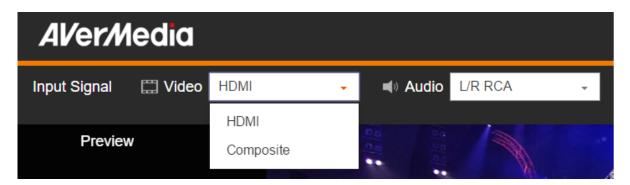


## Input Selection

To select video and audio inputs from HDMI and Composite (CVBS), find these menus on top of main screen. The input video resolution is also shown here.



Select to use HDMI or Composite video.

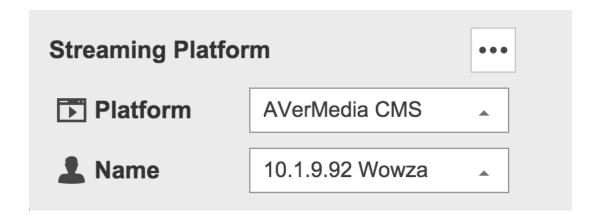


Select to use HDMI embedded audio or L/R stereo.

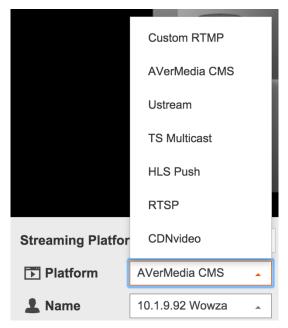


# **Streaming Platform**

SE510 supports various streaming protocols for streaming in Intranet and Internet. Integration with popular video service providers makes it very easy to deploy these streaming services to your applications. You can find the settings in the lower-left of main screen.



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## **Streaming Quality**

In this menu you can customize encoding profiles for optimal video quality, change network settings and deploy some of our streaming processing tricks such as Stream Stabilizer and Temporary Frame.



## **Stream Button**

In the main page SE510 has a sizable and easy-to-identify button to trigger streaming. On the front panel of SE510 you will also find a physical button that look and work the same as this one. All of the default settings are optimized so as to minimize the steps needed to start streaming. Since all settings are remembered across power-cycle, an immediate press on the stream button allows you to do "One-Click Streaming".



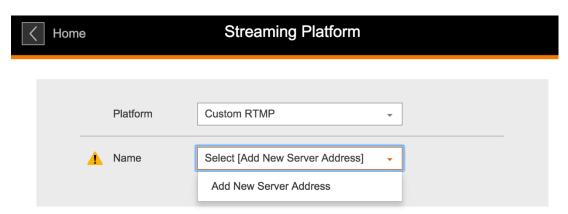
# **Streaming Platform**

## Streaming to RTMP Server

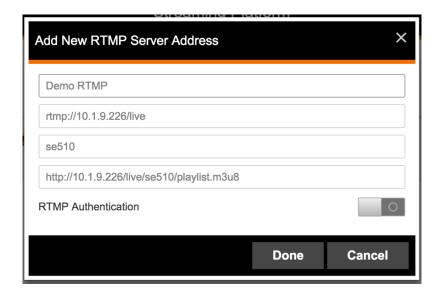
RTMP (Real Time Messaging Protocol) streaming is often deployed when you need a centralized server or server farm to dispatch media content to thousands of clients. SE510 supports RTMP streaming to Wowza, Adobe Media Server and Nginx. Streaming to YouTube Live, UStream, and CDNVideo also works if the RTMP URL and stream name are provided.

To deliver streaming to RTMP, we need the RTMP URL and stream name (stream key) from the video service providers. In the following example we will stream to an Nginx streaming server, which is assigned an IP address: 10.1.9.226.

Click "Streaming Platform" in the main page to create a custom RTMP setting.



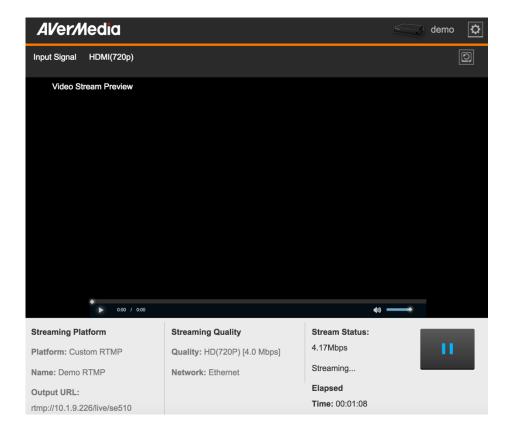
Enter an easy-to-remember name, RTMP URL and stream name. The playback URL is for the video preview function and will vary with the settings of the your RTMP server. In this case, Nginx server is providing transcoding service from RTMP to HLS.



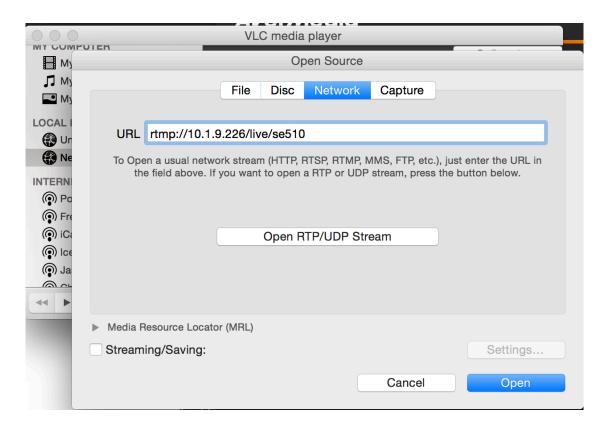
SE510 also supports RTMP authentication.



Click on the "Stream" button in the main page to start RTMP streaming.

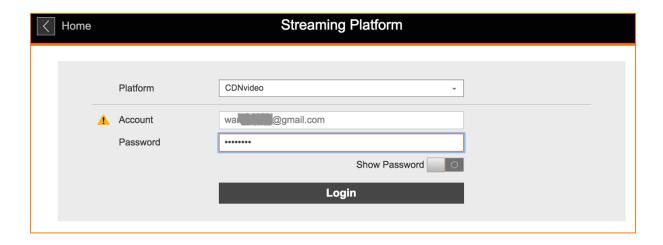


Use the "Output URL" to receive RTMP streaming in VLC.

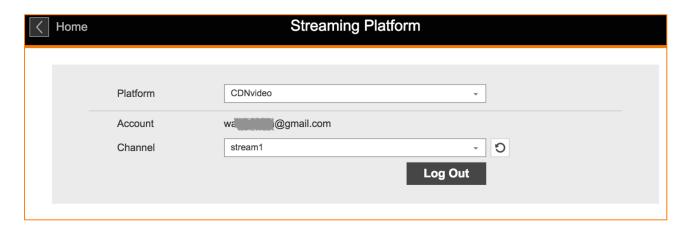


## Streaming to CDNVideo

Click "Streaming Platform" in the main page and select CDNVideo. Enter the account and password from CDNVideo and click "Login".



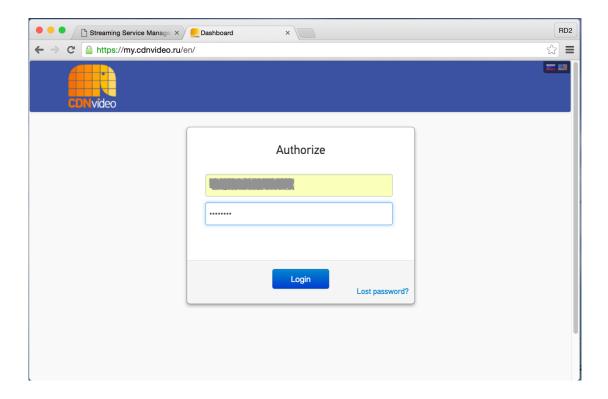
After login is successful, select a streaming channel.



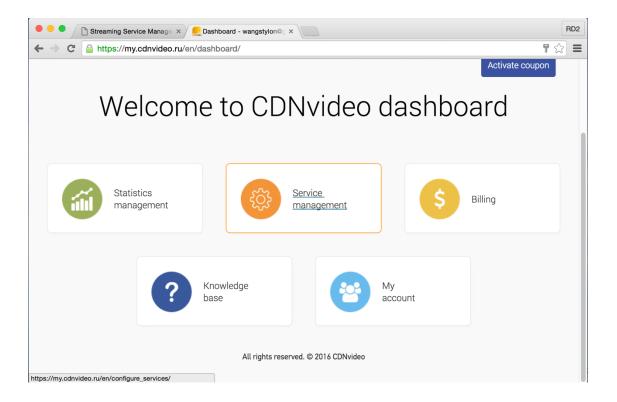
In the main page, press "Stream" button to start streaming.



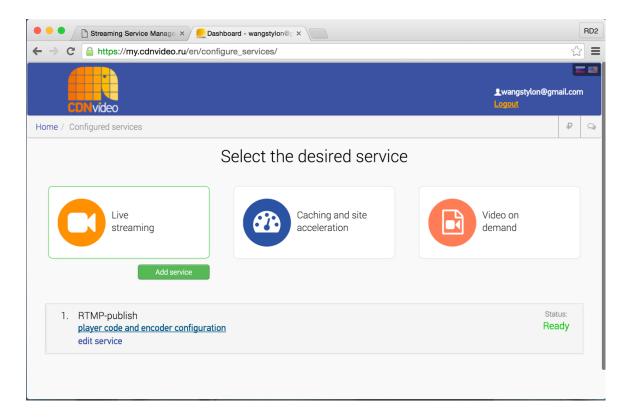
You need to visit CDNVideo website and retrieve the video link to provide to your audience. Sign in to their service.



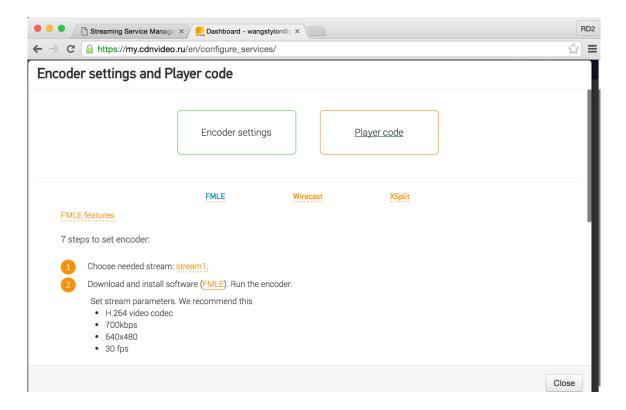
Choose "Service Management."



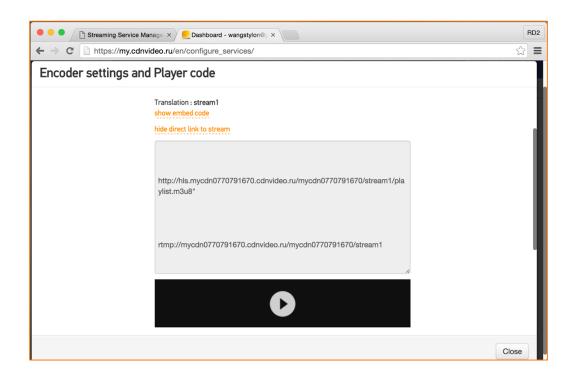
### Select "Live Streaming."



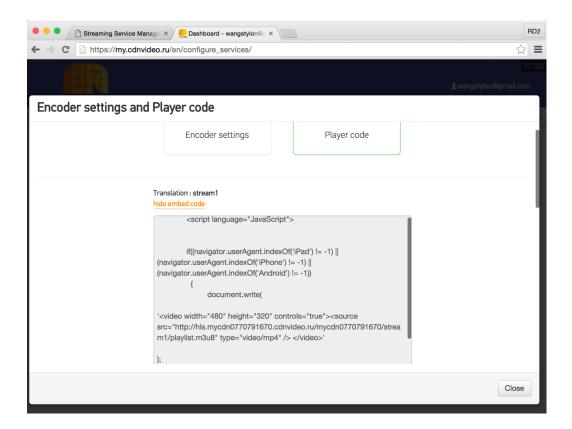
## Select "Player Code."



CDNVideo provides direct link to HLS and RTMP streaming respectively. You can use these links in VLC.



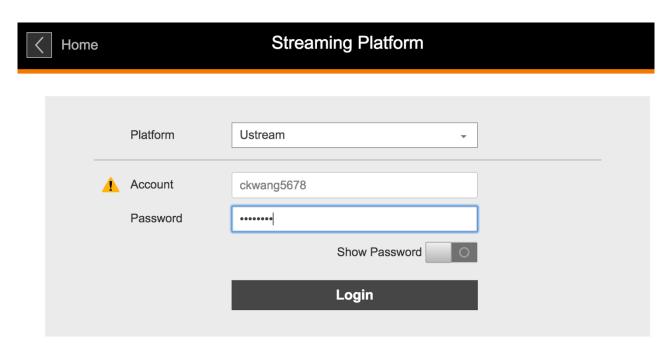
You can also have the code to embed video to your web portal.



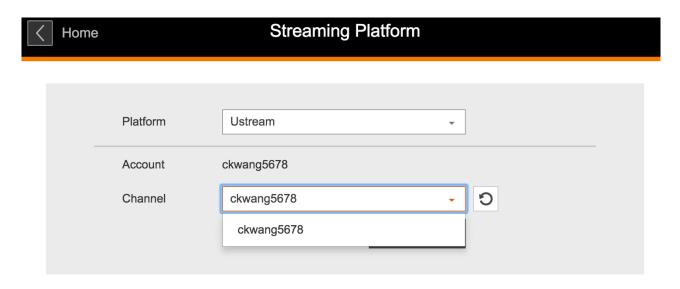
# Streaming to UStream

UStream is a popular video service provider for live events such as sports, activities and religious gatherings.

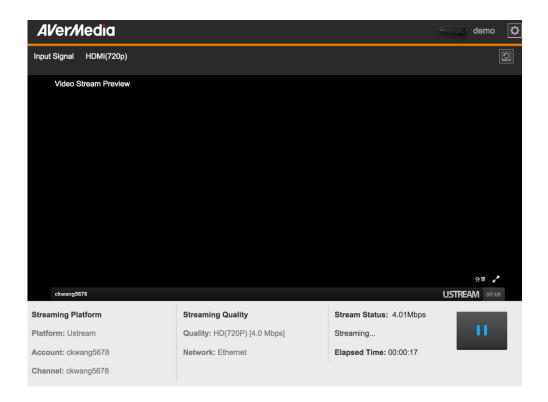
Click "Streaming Platform" in the main page to configure streaming to UStream. Enter the user name and password of your UStream account and press "Login."



Select a channel to stream to.



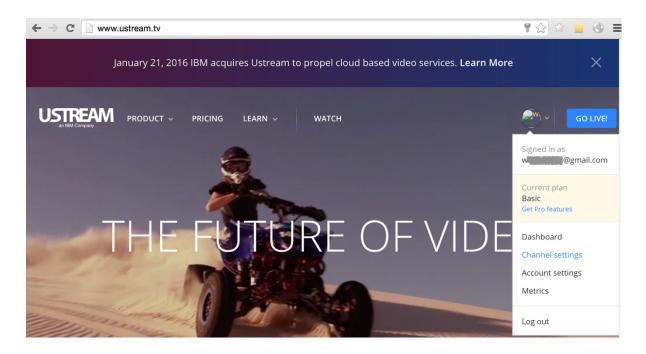
Go back to the main page and click on the "Stream" button to start streaming.



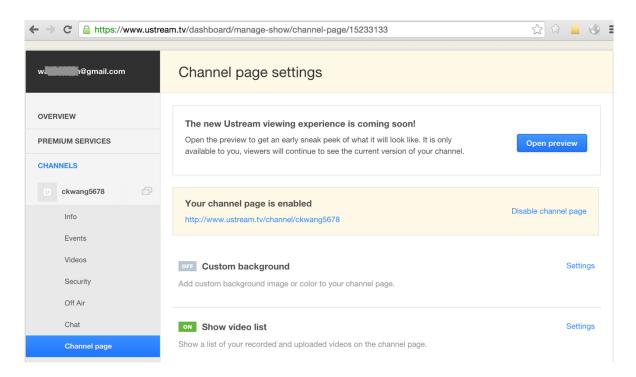
The player of UStream will need a moment to load. Please wait for several seconds until it starts to display the streaming video.



Besides notifying your audience to search the channel name in UStream website, you can also visit your "Channel Settings" in UStream website to retrieve this playback URL.



In your channel information page, select "Channel page" and there is the URL for viewing your live broadcast from any web browser.

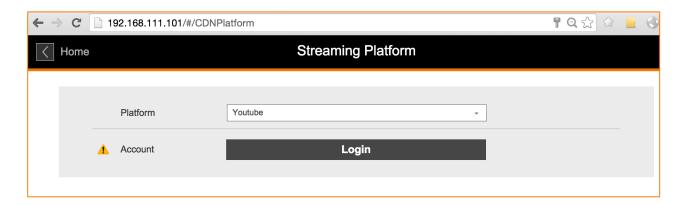


## Streaming to YouTube Live (Starting Version 1.4.0)

Not every YouTube account has permission to perform live streaming. Please visit "Creator Studio" in your YouTube account to check on how to apply for live streaming.

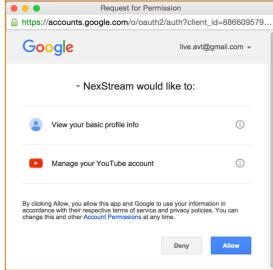
Note that integration with YouTube Live is only available after firmware version v1.4. For prior versions, please use RTMP Publish instead.

Click "Streaming Platform" in the main page to configure streaming to YouTube Live.

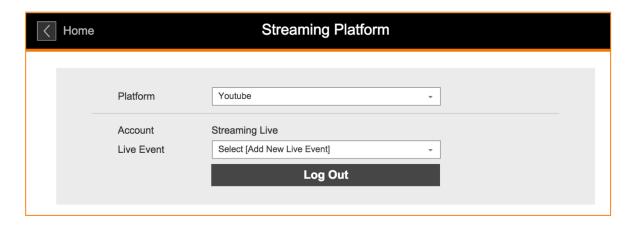


Click "Login" to bring up the authentication dialog from YouTube and allow NexStream to access your YouTube account.





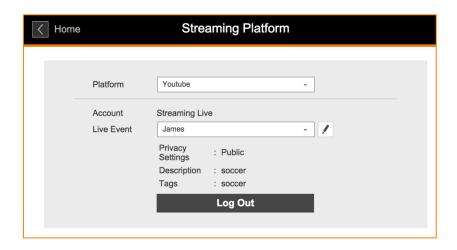
After authenticated to YouTube account, create a new event for this live streaming. Select "Add New Live Event".



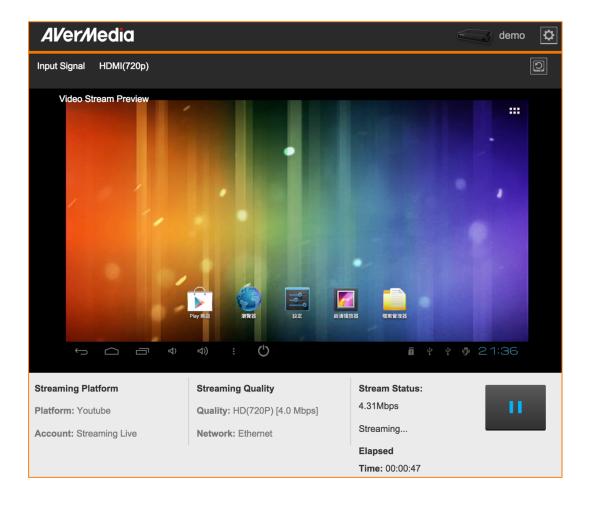
Enter the details of this new live event.



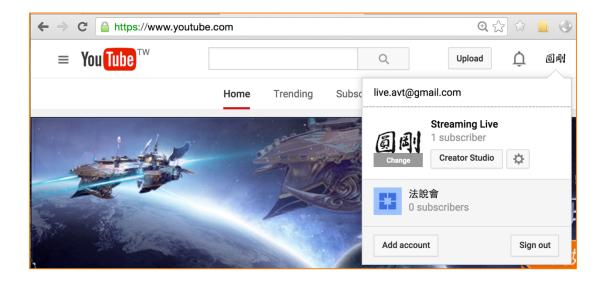
Click "Done" to go back to "Streaming Platform" and check if the details are correct.



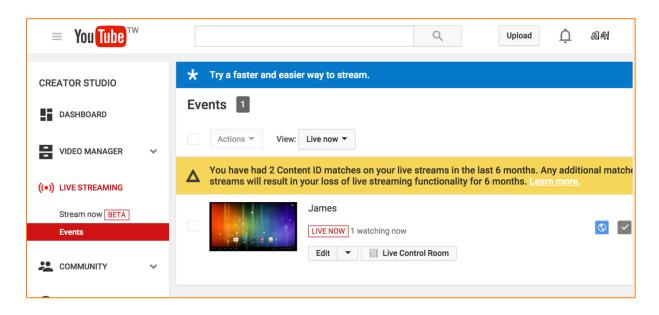
Go back to the main page to start streaming by clicking on the "Stream" button.

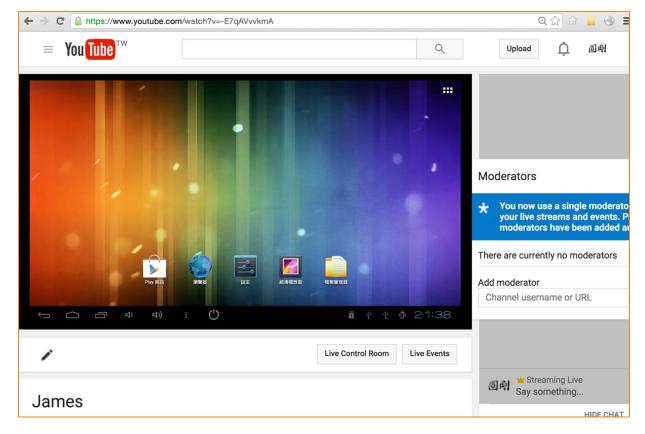


You can now visit YouTube to retrieve the playback URL for audience. Enter the "Creator Studio".



In "Live Streaming" → "Events", click on the video icon to open a web page to your live broadcast.

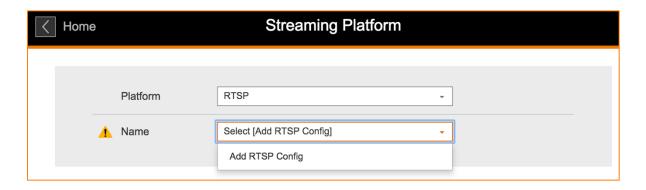




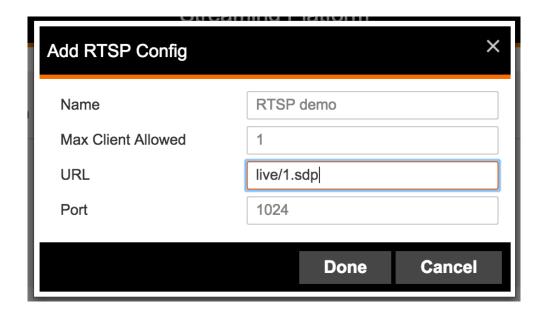
## **RTSP Streaming**

RTSP (Real Time Streaming Protocol) streaming is a basic function pervasive in the video surveillance industry. All IP surveillance systems accept and expect RTSP streaming, which makes RTSP essential if SE510 is to be integrated into an IP surveillance solution, such as those from Milestone.

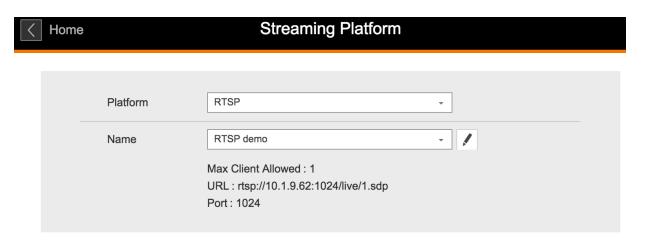
Click "Streaming Platform" in the main page to configure streaming with RTSP.



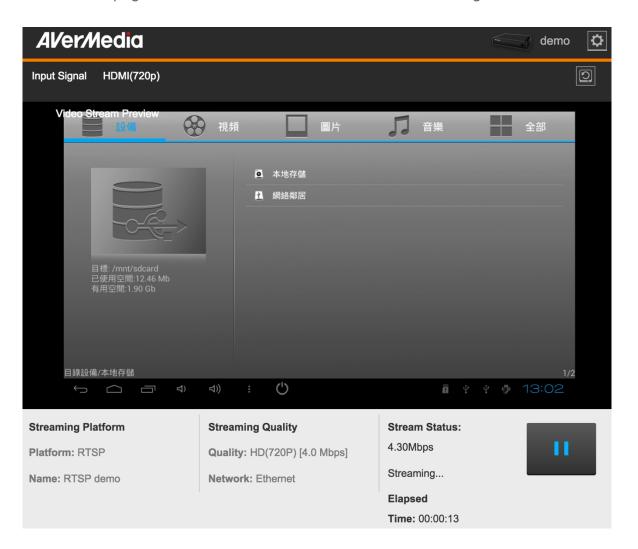
Enter the name of this streaming profile, URL and port number to service this RTSP streaming. The maximum number of clients allowed to receive this stream is better to set to 1 due to performance limits. For any number above 1, please adjust the encoding bit rate to a smaller value.



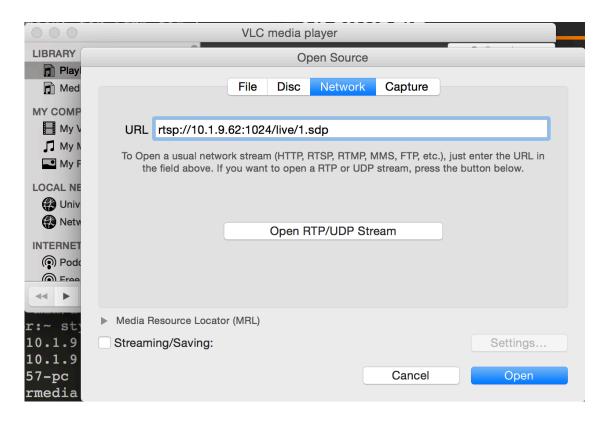
Click "Done" to save this configuration. The URL to service RTSP streaming is shown in this menu: rtsp://10.1.9.62:1024/live/1.sdp



Go back to the main page and click on "Stream" button to start streaming.



To receive RTSP streaming in VLC, please use the URL from the previous menu.

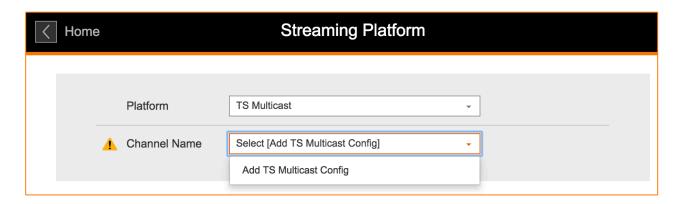


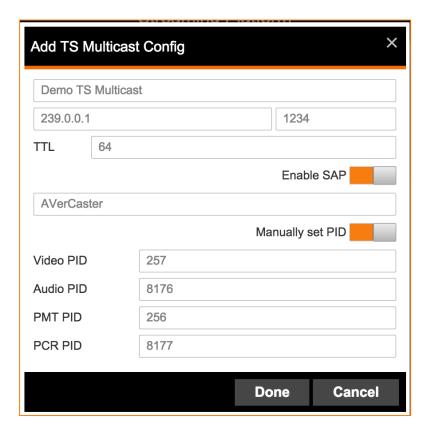
## **UDP Multicast (TS Multicast)**

UDP multicast is often used to deliver streaming to hundreds or thousands of clients in a local area network. The major benefit is that your network bandwidth will not be consumed or exhausted as the number of clients grows.

The requirement is that your network switch and router must properly support IGMP. Please consult with the manufacturer of your network equipment for a detailed qualification and setting procedures.

Click "Streaming Platform" in the main page to configure streaming with TS UDP multicast.



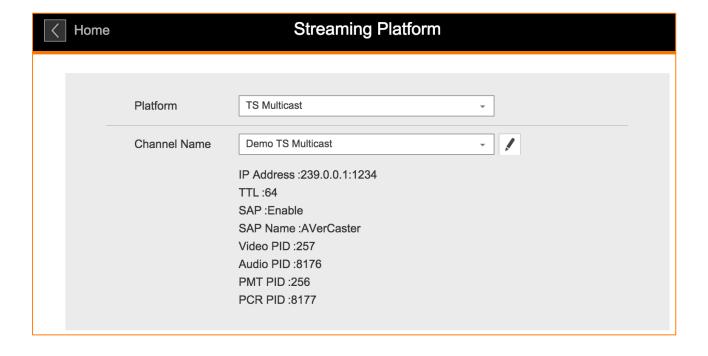


The IP Address must be a multicast address ranging from 224.0.0.0 to 239.255.255.255. Choose a port number between 1024 and 65535. This combination of IP address and port is the destination your streaming is going to.

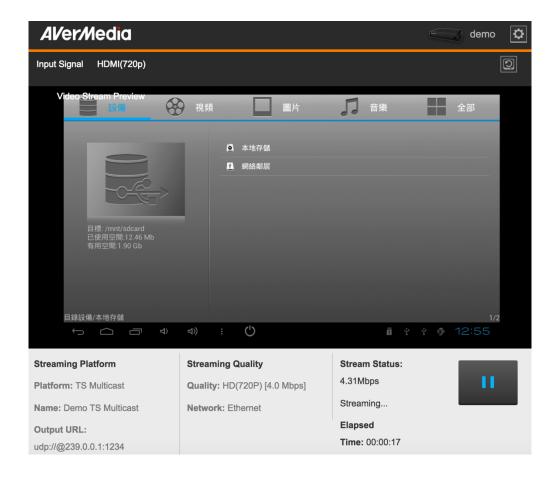
Adjust TTL value to determine how many router hops this streaming can travel, assuming your router is also configured to relay multicast traffic. Setting TTL to "1" limits multicast streaming within your local network.

SAP is like an electronic program guide in the network, with which the player/clients can be notified what video content can be received by the player/clients. The default SAP group name is "AVerCaster" and can be changed here. The channel name is fixed to be the name of the video input.

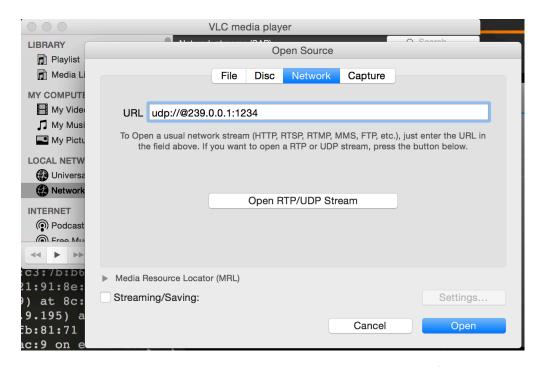
Click "Done" to finish the setting.



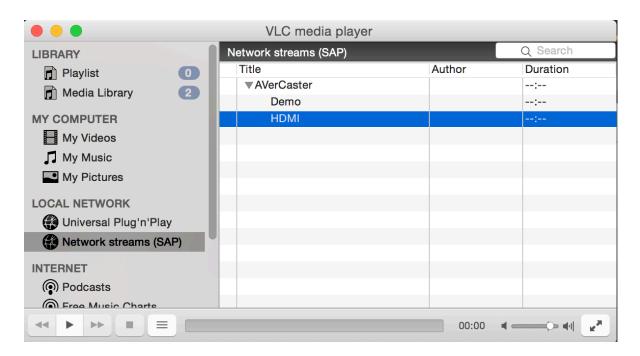
Click the "Stream" button to start streaming.



To receive stream on VLC, use the above "Output URL" in "Open Network Stream" in VLC.



Or browse the SAP program list in VLC and click to select the stream to play.



## **HLS Push Streaming to Web Server**

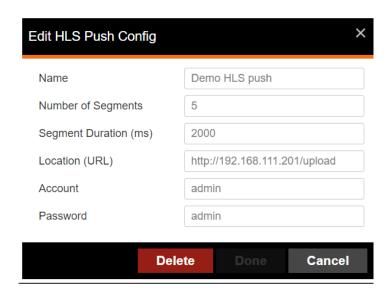
Using HLS Push, you can transfer segment files and playlists for live broadcasts to the web server for wide-scale delivery to HLS (HTTP Live Streaming) clients. HLS push streaming is often deployed when you need a centralized server or server farm to dispatch media content to thousands of clients. SE510 supports HLS push streaming to apache server and Microsoft IIS server.

To deliver streaming to HLS push, we need the URL location and access account from the web server providers. In the following example we will stream to an apache web server, which is assigned an IP address: 192.168.111.201.

Click "Streaming Platform" in the main page to create a custom HLS Push setting.

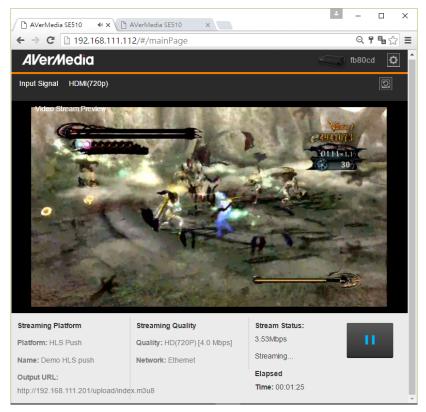


Enter an easy-to-remember name, number of segments, segment duration, location(URL) and account's name and password.

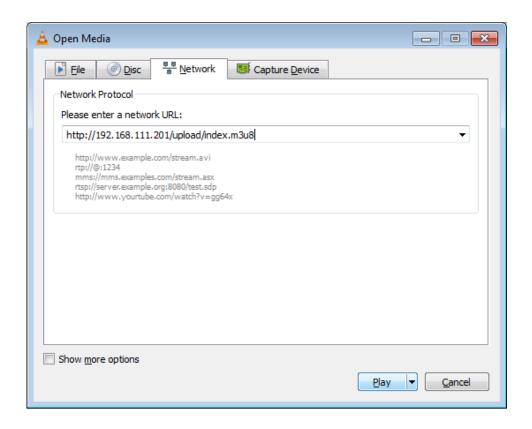


Click on the "Stream" button in the main page to start HLS push streaming.

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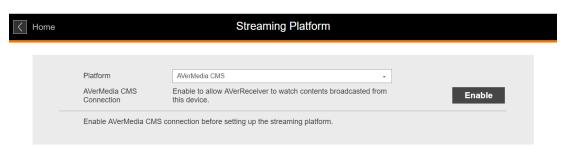
Use the "Output URL" to receive HLS Push streaming in VLC.



## Streaming to CMS and AVerReceiver with RTMP

Streaming to CMS and AVerReceiver with RTMP. At first, you must to connect to a CMS server.

Click "Streaming Platform" in the main page to create a custom CMS setting.



Next click "Enable" button to connect to a CMS server.



To deliver streaming to RTMP, we need the RTMP URL and stream name (stream key) from the video service providers. In the following example we will stream to an Wowza streaming server, which is assigned an IP address: 192.168.111.249.

Click "Add New Server Address" in the Streaming Platform page to create a custom RTMP setting.

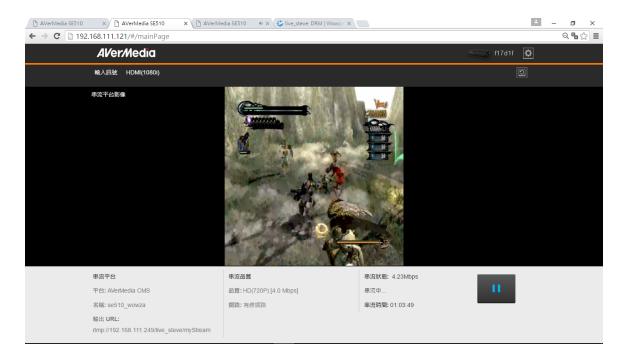


Enter an easy-to-remember name, RTMP URL and stream name. The playback URL is for the video preview function and will vary with the settings of the your RTMP server. In this case, Nginx server is providing transcoding service from RTMP to HLS.



SE510 also supports RTMP authentication.

Click on the "Stream" button in the main page to start RTMP streaming.

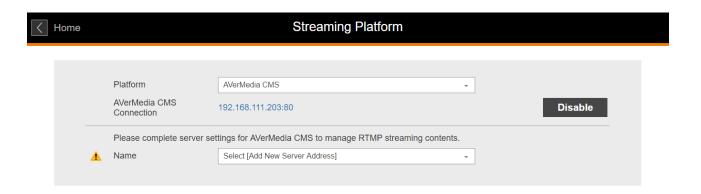


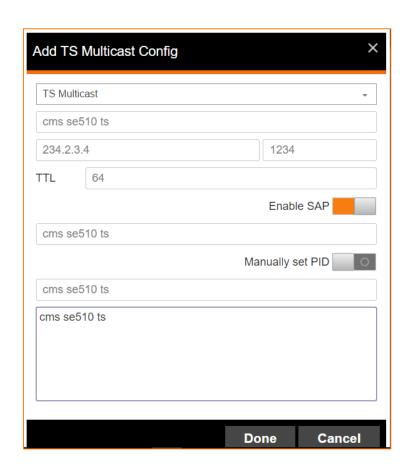
Use the "Output URL" to receive RTMP streaming in VLC.

# Streaming to CMS and AVerReceiver with TS UDP Multicast

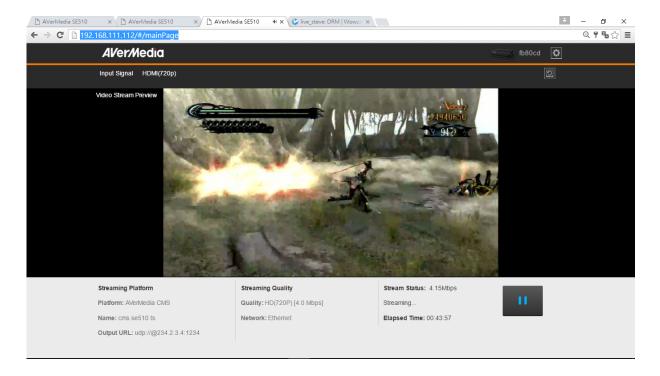
Streaming to CMS and AVerReceiver with TS UDP Multicast. At first, you must to connect to a CMS server as last section.

Click "Add New Server Address" in the Streaming Platform page to create a custom TS UDP Multicast setting.





Click the "Stream" button to start streaming.



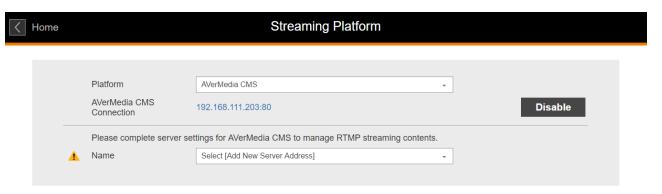
To receive stream on VLC, use the above "Output URL" in "Open Network Stream" in VLC.

Or browse the SAP program list in VLC and click to select the stream to play.

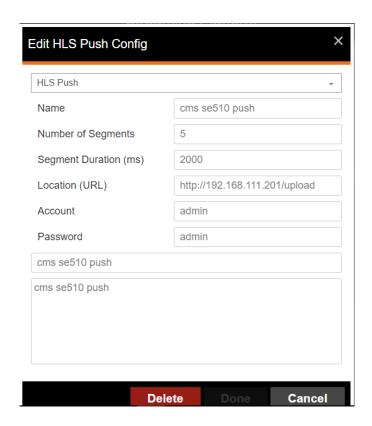
# Streaming to CMS and AVerReceiver with HLS Push

Streaming to CMS and AVerReceiver with HLS Push. At first, you must to connect to a CMS server as last section.

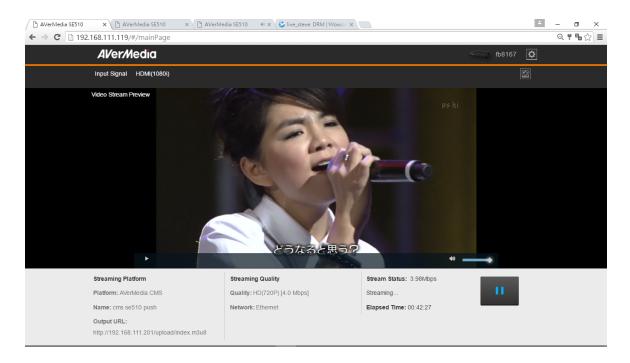
Click "Add New Server Address" in the Streaming Platform page to create a custom HLS Push setting.



Enter an easy-to-remember name, number of segments, segment duration, location(URL) and account's name and password.



Click on the "Stream" button in the main page to start HLS push streaming.



Use the "Output URL" to receive HLS Push streaming in VLC.

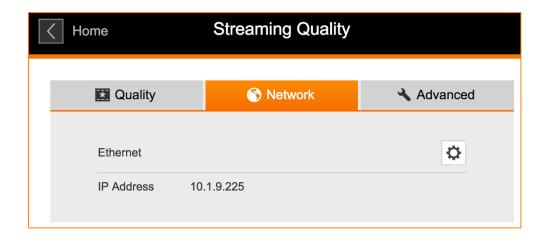
# **Streaming Quality**

In "Streaming Quality" menu you can adjust the encoding profiles, change network settings and enable advanced streaming features.

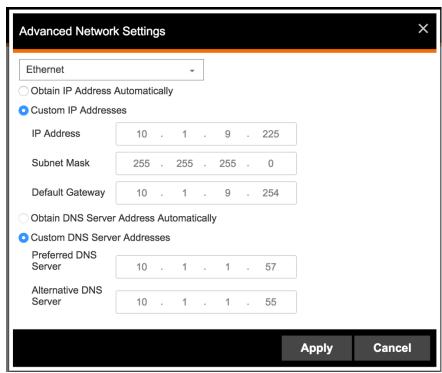
## **Network Settings**

SE510 supports wired connection with 10/100Mbps Ethernet connection and WIFI connection through 2.4G/5G.

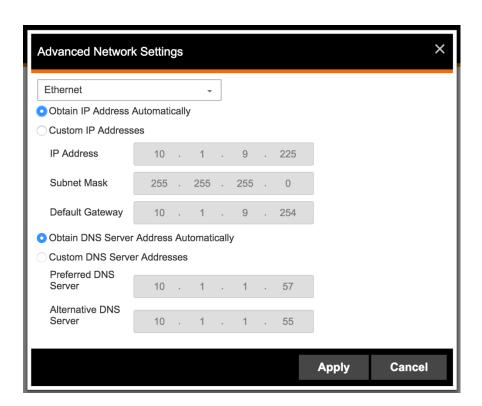
To change or view network settings, visit the "Streaming Quality" page from the main page.



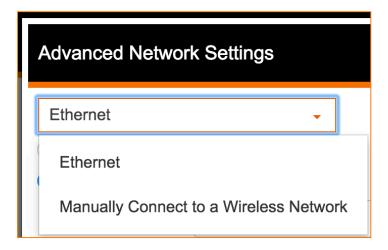
To change the network settings, click on the settings icon. This example sets SE510 to use a fixed IP address by manually assigning the network settings.



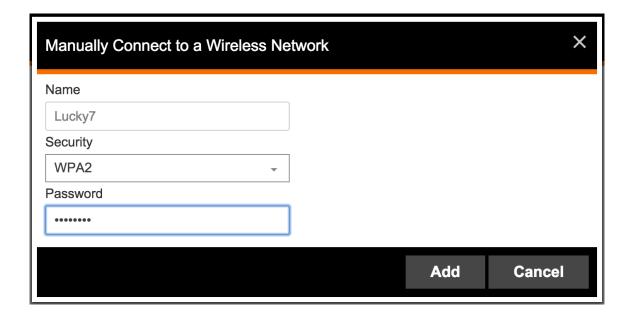
Select "Obtain IP Address Automatically" to obtain settings from DHCP server, or fall back to RFC3927 to use random IP from 169.254.\*.\* range if no DHCP server can be found.



To enable WIFI connection, select "Manually Connect to a Wireless Network".



Manually enter the SSID, authentication method and password to connect to a WIFI access point.



If fail to connect to a WIFI network, SE510 will fall back to use Ethernet connection. If WIFI connection is made successfully, please launch NexStream to search again for SE510 in the new network, since SE510 is no longer connected to the Ethernet wired network.

## Selecting 2.4G or 5G WIFI

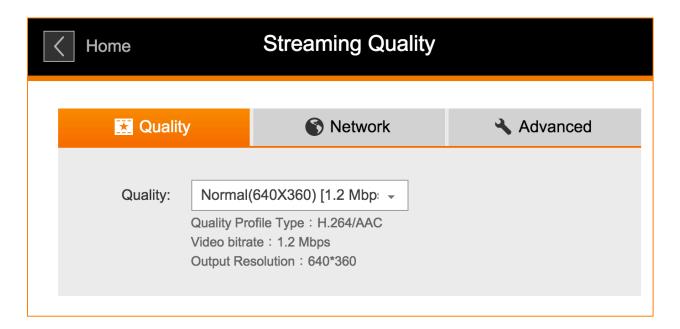
5G WIFI is less crowded and may provide better performance if supported by your network infrastructure. To use 2.4G or 5G WIFI, flip the 2.4G–5G switch found at the back of SE510.



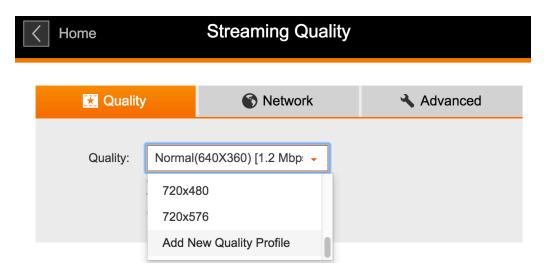
## Quality (Encoding Profiles)

In addition to built-in encoding profiles, SE510 also allows for customized encoding profiles.

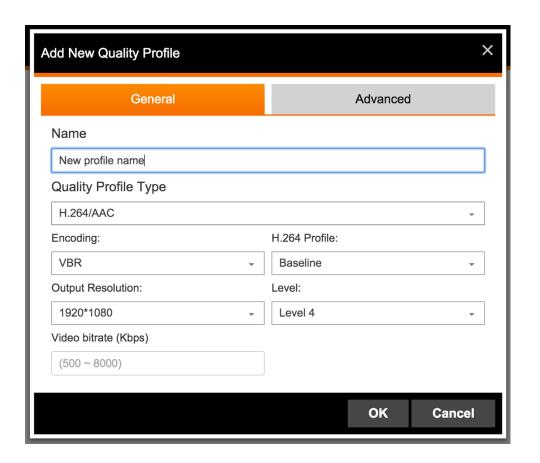
Access "Quality" settings in the "Streaming Quality" page from the main Page.



Scroll down the list to find "Add New Quality Profile."



Enter the name of this new profile and adjust the encoding parameters.



### Quality Profile Type

There are two options here. "H.264/AAC" is encoding with video in H.264 format and audio in AAC format. "AAC Only" encodes with audio in AAC format and no video is encoded.

## Encoding

**VBR** (Variable Bit Rate) optimizes towards video quality. This is recommended if video quality is a concern.

**CBR (Constant Bit Rate)** strives to keep bit rate constant and very close to the target bit rate. In doing so, it does not optimize video quality as VBR does. This is recommended on Internet streaming to YouTube Live, UStream and other service providers on the Internet.

### Output Resolution

SE510 provides down-scaling of video from 1920x1080 to 320x240. Upscale is NOT recommended and will often result in video quality issues.

### Video Bit Rate

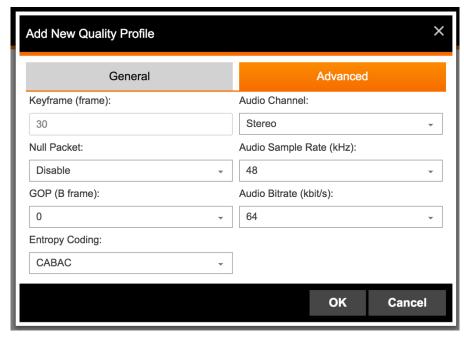
Enter target bit rate here in units of Kbit per second; the higher the number, the higher the video quality and consumption of network bandwidth.

### H.264 Profile

Main, high and baseline profiles are supported.

### Level

Use different levels to support other video resolutions and bit rates.



## **Key Frame**

This number decides the length of one GOP structure, and is also called "GOP length". A value of 30 means there is one I (index) frame or key frame in every 30 video frames. Setting this too low will negatively impact video quality.

### **Null Packet**

Some streaming equipment will need null packet to keep bit rate fluctuations small. Enable this feature if the receiving equipment need this.

### GOP (B frame)

Set to "0" to make GOP structure to "IPPP", where there is no B frames at all. Set to "1" to make GOP structure to "IBP". Set to "2" to make GOP structure to "IBBP".

## **Entropy Coding**

CABAC is commonly used for its better performance in video quality. Use CAVLC if you select "baseline" in H.264 profile.

### Audio Channel

Output audio can be stereo or mono.

### Audio Sample Rate

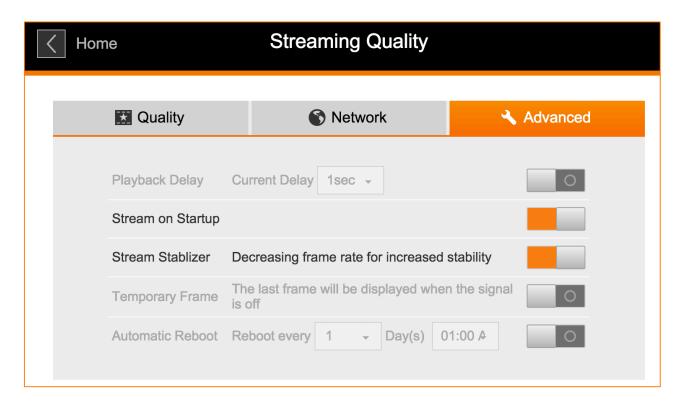
Audio sample rate is fixed to 48KHz on SE510.

### Audio Bit rate

Select audio bit rate in Kbps. The higher the bit rate the better the sound quality.

## **Advanced Streaming Processing**

SE510 has advanced streaming processing as outlined in the following.



## Playback Delay

Adds more delay in RTMP streaming. This gives you more time to pull the plug if inappropriate content is about to go live on the air. Default is "OFF".

Please note that Playback Delay only works in RTMP streaming.

### Stream on Startup

If SE510 is accidentally powered down or experiencing power outage, by default SE510 will resume streaming automatically. If this is not what you want, for example, instead of stopping streaming manually you just pull the power plug every time the live streaming has come to an end, disable this option here. Default is "ON".

### Stream Stabilizer

In the case of network congestion and causing packet drops, your live streaming will appear to the audience with a lot of green stripes and mosaic noise. Turning on "Stream Stabilizer" will temporarily lower the bit rate by sending only one video frame in every GOP structure, which is one second in 1080P30 streaming if "Key Frame" in the quality settings is also 30. Audio in the meanwhile stays the same.

If packet drop continues without improvement, SE510 will go to the next level and send out only audio packets. So the audience will be watching a still video with working audio.

In any case, if packet drop improves, SE510 will resume and send out video and audio in a normal way.

If you want the audience to experience green stripes and mosaic noises in the event of network congestion, turn this OFF. Default is "ON".

Note that this function only works in RTMP streaming.

### Temporary Frame

In the event of signal loss, SE510 will present a blue video in streaming. Turn this function on will present the last available picture to the audience if signal is cut off. Turning on this feature will introduce more delay to streaming. Default is "OFF".

Note that this function only works in RTMP streaming.

### Automatic Reboot

For maintenance purpose, SE510 can restart itself in scheduled day intervals and specified hour of day. Please note that after a power-down or power-cycle, the reboot timer will reset. For example, if SE510 is set to restart every 2 days and is power-cycled at the end of the first day, next restart will occur 2 days after the power-cycle.

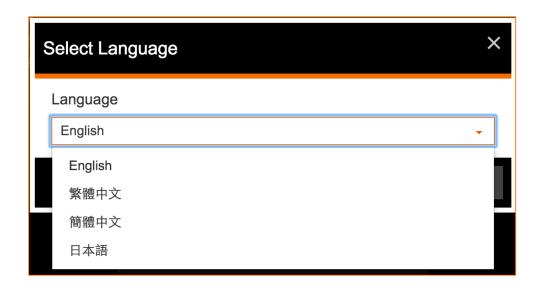
Default is "OFF".

# **Other Settings**

Other settings can be found by clicking the upper right "gear" icon in the main page.

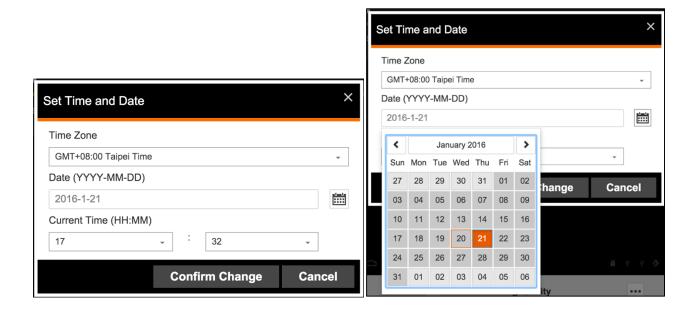
## Select Language

Select language of the management user interface.



## Set Time and Date

Correct time and date is crucial if you use "Report Problems" which has all logs time-stamped.



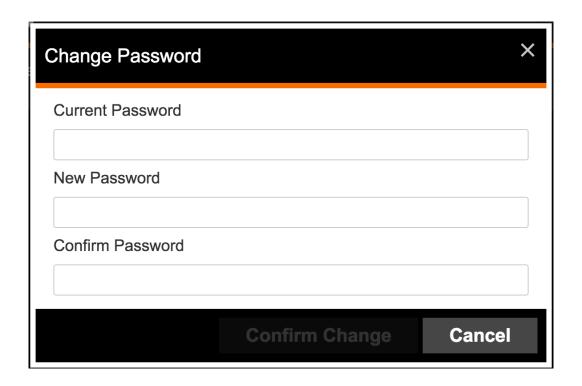
## **Edit Device Name**

Device name makes it easy to manage and identify individual SE510 and it also serves as the name of WIFI access point on-board SE510. Default SSID is SE510 followed by last 6 hexadecimal digits of MAC address.



## **Change Password**

The default password of SE510 is "admin". But wifi default password is "avermedia" (wifi password must not be less than 8 characters). Please change this password to protect your SE510 from unauthorized access.



## **Update Firmware**

SE510 supports upgrade to a newer version as well as rollback to an older version. Settings will be preserved between updates. Note that firmware update is available only on Mac OS and Windows laptop/PC.

Please download firmware from the AVerMedia website. After unzip the compressed archive, upload the file named as "SE510\*.BIN" here.



After BIN file is uploaded and verified of its integrity, confirm this dialog to proceed on the update. **DO NOT remove the power or network cable until you are prompted that the process has completed successfully.** 

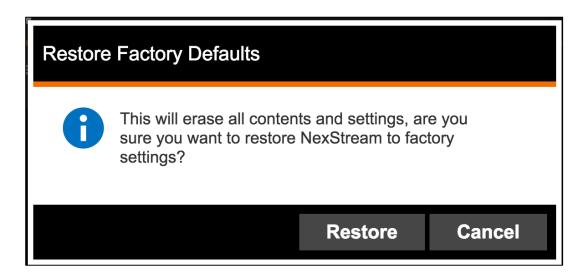


Once the update is complete, SE510 will automatically restart and present with this dialog.



## Restore to Factory Defaults

In addition to the reset button found at the back panel of SE510, this menu also resets SE510 back to its factory default and erases all the settings you made.



To use the reset button of SE510, find a paperclip or small pin to poke into the hole and press firmly for at least 5 seconds and let go. SE510 will wipe out all the settings and restart.

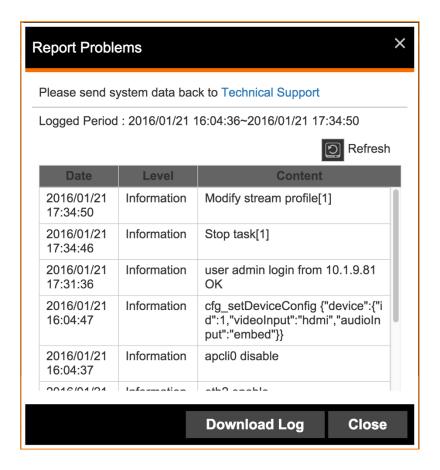
## **About NexStream**

Current firmware version is available in this menu, along with a link to the product page on the AVerMedia website.



## Report Problems

SE510 logs its operations for problem analysis and issue resolving in this menu. It is also recommended to use "Download Log" to download a diagnostic report before contacting technical support from AVerMedia.



## **Limited Warranty**

AVerMedia warrants that the Product is free from defects in material and/or workmanship under normal use.

AVerMedia does not warrant that the operation of the Product will be uninterrupted or error-free. The Limited Warranty does not cover:

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- · Product has been tested, altered, modified, repaired or serviced by someone other than AVerMedia (or its authorized service centers);
- Failure to adhere to user's manual.
- Product that are operated in combination with third party's software which may be obtained by user or provided by AVerMedia in the product
  packaging.
- · Product that are operated in combination with third party's device(s)/equipment(s), or the damage is caused from computer viruses
- Damage caused by (a) misuse, abuse, neglect, improper use of the physical or operating environment (such as the exterior ruptures, moisture, exposure to temperature, high or low humidity, power overload, placement subject to extreme environments that include a lack of ventilation or stacking, throwing, soakage, etc.) or modification; (b) improper or unauthorized installation, wiring, repair, testing; (c) use of the Product outside AVerMedia published guidelines; (d) accident, fire, acts of God or force majeure such as natural disasters, environmental distress, or lightning; power surges; (e)improper maintenance or failure to use the information content in accordance with the Product.
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- A separate warranty may be provided by international distributors. This warranty is provided by the local in-country distributor and this
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### **How to provide Warranty Service**

Services may vary by geographic region, please contact AVerMedia or its distributor for a response regarding the appropriate services for your Product. The Warranty Service may be provided by the following types.

### a. Customer Delivery Service

According to "Customer Delivery Service," the customer must pay for their own product to be delivered to a designated service center for repair or replacement, and all risks are borne by the customer. The customer may retrieve the product after the repair or replacement process has been completed. Should the customer fail to collect the product, the company will handle the product as it sees fit without incurring any liability.

### b. Mail-In Service

According to "Mail-In Service," customers will be required to pay for their own products to be mailed to a designated service center for repair or replacement, and all the risks are borne by the customer. After the product has been repaired or replaced, AVerMedia will send the product back to the customer at their own expense and bear all risks, except where otherwise specified by service dealers.

#### c. Customers' Two-Way Mail Service

According to "Customers' Two-Way Mail Service," customers will be required to pay for their own product to be delivered to a designated service center for repair or replacement, and all the risks are borne by the customer. After the product has been repaired or replaced, the product will be returned to the customer, for which all delivery and other risks are borne by the customer. If the customer fails to arrange for the return transport of the product, the company will handle the product as it sees fit without incurring any liability.

#### No On-Site Service

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Any localized version of the EULA is for reference only. In case of inconsistencies between the localized version and the English version, the English version will prevail.



## **European Community Compliance Statement**

Class B

This product is herewith confirmed to comply with the requirements set out in the Council Directives on the approximation of the laws of the Member States relating to Electromagnetic Compatibility Directive (EMC) 2014/30/EU, Low Voltage Directive (LVD) 2014/35/EU and Energy-related Products Directive (ErP) 2009 / 125 / EC.



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VCCI-B



5GHz Band: Indoor use only



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The mark of crossed-out wheeled bin indicates that this product must not be disposed of with your other household waste. Instead, you need to dispose of the waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. For more information about where to drop off your waste equipment for recycling, please contact your household waste disposal service or the shop where you purchased the product.