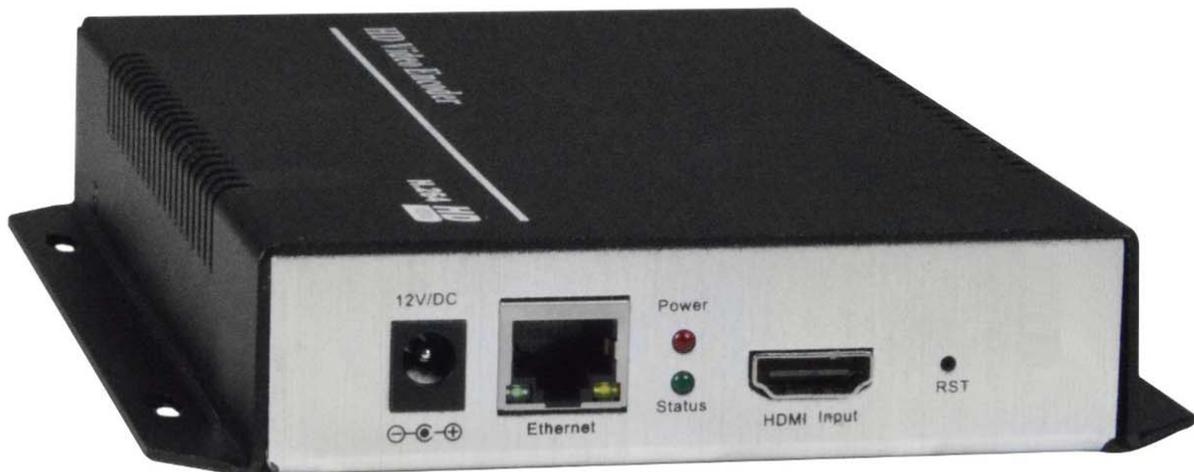


HD-ENC-H264

H.264 HDMI Video Encoder

Operation Manual



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CHANGES

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INTRODUCTION

The H.264 HDMI Video Encoder streams 1080p video from an HDMI video source to a media streaming server (Wowza, Xtreme Codes, Nginx, etc) or online live broadcast platform (YouTube Live, FaceBook Live, IBM Cloud Video (Ustream), etc) over IP in real time. It encodes video using H.264 compression and AAC/MP3 audio.

Features:

- Accepts 1080p HD video at 60 frames per second and produces IP streams that can be sent on a standard Ethernet cable.
- Encode the same HDMI video source in two different formats and resolutions - unicast and multicast.
- Supports RTMP, RTSP, UDP, HTTP, HLS, FLV and ONVIF protocols
- Compatible with most Internet live broadcast platforms, such as YouTube Live, Facebook Live, Twitter Live, Twitch, and IBM Upstream.
- Broadcast to SmartTVs using a media streaming sever, such as Wowza, Xtreme Codes, Nginx, etc.
- Easy-to-use HTTP-based web interface.
 - Modify network and video quality settings such as IP address, bit rate, and fps.
- Add text and logos to the video stream.
- Supports 100Base-T Ethernet connection.
- Linux inside.
- Ideal solution for many applications, including:
 - Digital signage
 - IPTV/SmartTV
 - Hotel TV systems
 - Live broadcast
 - Classrooms - teaching online
 - IP video surveillance
 - Video conference

Factory Default Settings:

IP: 192.168.1.168

Username and Password: admin

When you first login, if the display is in Chinese, select English (lowermost choice) from the pull down menu located at the top right of the window.

Upon Initial Login to the User Interface through your browser, you will be provided with a Status Display providing the following information:

Input Status : shows the type of input signals that are attached

Running Time: Indicates how long the Encoder has been connected to the Input Source

CPU Usage: Typically 25% (if this value is more than 85%, there may be an excess drain on the resources of the source)

Input Size: 1920x1080p@60Hz (Default configuration for the source)

Collected Video Frames: 65116 (Indicates how many frames of video have been encoded from the source)

Lost Video Frames: Indicates how many frames have dropped by the encoder

Audio Sample Rate: 48000

Network Settings:

Click on the "Network Settings" tab to view the current network settings and MAC address for the Encoder.

The screenshot displays the 'Internet access' configuration page. It features a blue header with the title 'Internet access'. Below the header, there are several input fields: 'DHCP' is set to 'Disable' in a dropdown menu; 'IP' is '192.168.1.168'; 'Netmask' is '255.255.255.0'; 'Gateway' is '192.168.1.1'; and 'MAC' is '00:13:14:15:3C:F0'. Below this section is the 'DNS' section, also with a blue header, containing 'DNS1' set to '192.168.1.1' and 'DNS2' set to '8.8.8.8'. The 'PORT' section, with a blue header, shows 'HTTP Port' as '8080' and 'RTSP Port' as '8554', both with a range indicator '[1-65500]'. At the bottom of the form is a dark grey button labeled 'Set up'.

Be sure to enter the proper DNS server and Gateway address. Otherwise the Encoder will not be able to connect with the internet and stream video to your desired destination.

To set the destination, configure the video settings for one or more Mainstream addresses:

Main stream

FPS:	<input type="text" value="30"/>	[5-60]
GOP:	<input type="text" value="30"/>	[5-300]
Bitrate (kbit):	<input type="text" value="3500"/>	[32-32000]
Encoded size:	<input type="text" value="1920x1080"/>	
H.264 Level:	<input type="text" value="high profile"/>	
Bitrate control:	<input type="text" value="vbr"/>	
MIN_QP:	<input type="text" value="5"/>	[1-35]
MAX_QP:	<input type="text" value="42"/>	[MIN_QP-50]
TS URL:	<input type="text" value="/0.ts"/>	Disable ▾
HLS URL:	<input type="text" value="/0.m3u8"/>	Disable ▾
FLV URL:	<input type="text" value="/0.flv"/>	Disable ▾
RTSP URL:	<input type="text" value="/0"/>	Disable ▾
Multicast IP:	<input type="text" value="238.0.0.1"/>	Disable ▾
Multicast port:	<input type="text" value="1234"/>	[1-65535]
RTMP PUBLISH URL:	<input type="text" value="rtmp://192.168.1.50/live/1"/>	Enable ▾

rtmp://ip/xxx/xxx or rtmp://user:pass@ip/xxx/xxx

Set up

Field	Description
FPS	Max. is 60fps, but when input is 1080i, fps will be halved (for deinterlacing)
GOP	Group of pictures (recommend using the same value as the FPS)
BITRATE (kbit)	Value depends on the video quality needed (suggestions: 1080p@3500kbs, 720p@2800kbs, SD@1500kbs)
Encoded size	Encoded Output Resolution.
H.264 Level:	Profile-baseline / main / high Profile High Profile is recommended
Bitrate control:	Vbr (Variable Bitrate) or Cbr (Constant bitrate)
MIN_QP	Minimum Quantization Parameter (Typically between 1-35) The larger the value, the more stable the bandwidth will be, but video quality will decrease. Recommend using the default value (5)
MAX_QP	Maximum allowable is 50, default is 42

TS URL	/0.ts	Select to Enable or Disable
HLS URL	/0.m3u8	Select to Enable or Disable
FLV URL	/0.flv	Select to Enable or Disable
RTSP URL	/0	Select to Enable or Disable
Multicast IP	238.0.0.1	Select to Enable or Disable
Multicast port	Port to use for multicasting video/audio (1-65535)	
RTMP PUBLISH URL	Address of the real time media player to broadcast encoded video to.	

RTMP Settings:

Wowza- `rtmp://serverIP:port/Application/stream name`
i.e. - `rtmp://192.168.1.50P:1935/live/oupre`

If Wowza requires Source Authentication, the source is username **oupre** , password is **123456** , so the address will be:
`rtmp://oupre:123456@192.168.1.50P:1935/live/oupre`

Xtream Codes- on its panel, write address as `rtmp://127.0.0.1:8001/live/stream name`

OSD- to display the transparent logo, set the background color as 0xF1F1F1 or R-177 G-204 B-233,

See examples on pages 7 and 8.

Audio Encoding Settings:

Generally, leave these set at the default (as shown below), but if you feel comfortable changing the settings, set as needed.

The image shows a configuration interface for audio encoding. It is divided into two main sections: 'Audio encoder' and 'ONVIF Audio'.
In the 'Audio encoder' section, there are three settings: 'Samplerate' is a dropdown menu set to '44100'; 'Encoder' is a dropdown menu set to 'AAC+'; and 'Bitrate' is a text input field set to '48000', with a blue range indicator '[24000~48000]' to its right. A dark grey 'Set up' button is located below these settings.
The 'ONVIF Audio' section has a blue header. Below it, the text 'G711A Over' is displayed. Underneath, 'RTSP:' is followed by a dropdown menu set to 'Disable'. A dark grey 'Set up' button is located at the bottom of this section.

System Settings:

In this window you can change the password if desired.

System Settings

Change password

Old password:

New password:

Confirm password:

The Advanced settings (right) are provided to give the expert user significant control over how the streamed content is managed.

Advanced

Video Only:	<input type="text" value="Disable"/>	
Audio Only:	<input type="text" value="Disable"/>	
Hls Splitter Time(s):	<input type="text" value="10"/>	[3-20]
Hls Number:	<input type="text" value="5"/>	[3-20]
TS muxer:	<input type="text" value="Compatible with FFMPEG"/>	
Deinterlaced:	<input type="text" value="Bottom Only"/>	
Net Drop Threshold:	<input type="text" value="5000"/>	[50-50000]
TS once pack:	<input type="text" value="7"/>	[3-128]
ts_transport_stream_id:	<input type="text" value="101"/>	[1-65535]
ts_pmt_start_pid:	<input type="text" value="480"/>	[16-7936]
ts_start_pid:	<input type="text" value="481"/>	[32-3840]
ts_tables_version:	<input type="text" value="6"/>	[0-31]
ts_service_name:	<input type="text" value="Live"/>	
ts_service_provider:	<input type="text" value="Encoder"/>	
TS Empty Packet:	<input type="text" value="No Insert"/>	
TS password enable:	<input type="text" value="Disable"/>	
Vmix Compatible:	<input type="text" value="Disable"/>	
TS OVER RTSP:	<input type="text" value="ES"/>	
Multicast type:	<input type="text" value="UDP"/>	
UDP TTL:	<input type="text" value="64"/>	[1-254]
UDP SOCKET_BUF_SIZE:	<input type="text" value="20971520"/>	[0-20971520]
Slice split enable:	<input type="text" value="Disable"/>	
Slice size:	<input type="text" value="1024"/>	[128-65535]
MIN_QP:	<input type="text" value="5"/>	[1-35]
MAX_QP:	<input type="text" value="42"/>	(MIN_QP-50)

NTP:

Under System Settings is the ability to setup a connection to an NTP server. Enable the feature, enter the address of a legitimate NTP server, and enter the time zone that should be used.

Serial to TCP:

To use TCP protocol, select the baud rate of the device that will send commands, and enter the port number that will be used.

The image shows two configuration panels. The top panel, titled 'NTP', has a blue header. It contains three settings: 'NTP enable:' with a dropdown menu set to 'Disable', 'Ntp Server:' with a text input field containing 'time.windows.com', and 'Time Zone:' with a dropdown menu set to 'UTC+8'. Below these is a dark grey 'Set up' button. The bottom panel, titled 'Serial to TCP', also has a blue header. It contains two settings: 'Baud Rate:' with a dropdown menu set to '9600' and 'TCP Port:' with a text input field containing '5150'. To the right of the TCP Port field is a blue link '[1-65535]'. Below these is a dark grey 'Set up' button.

NTP

NTP enable: Disable ▾

Ntp Server: time.windows.com

Time Zone: UTC+8 ▾

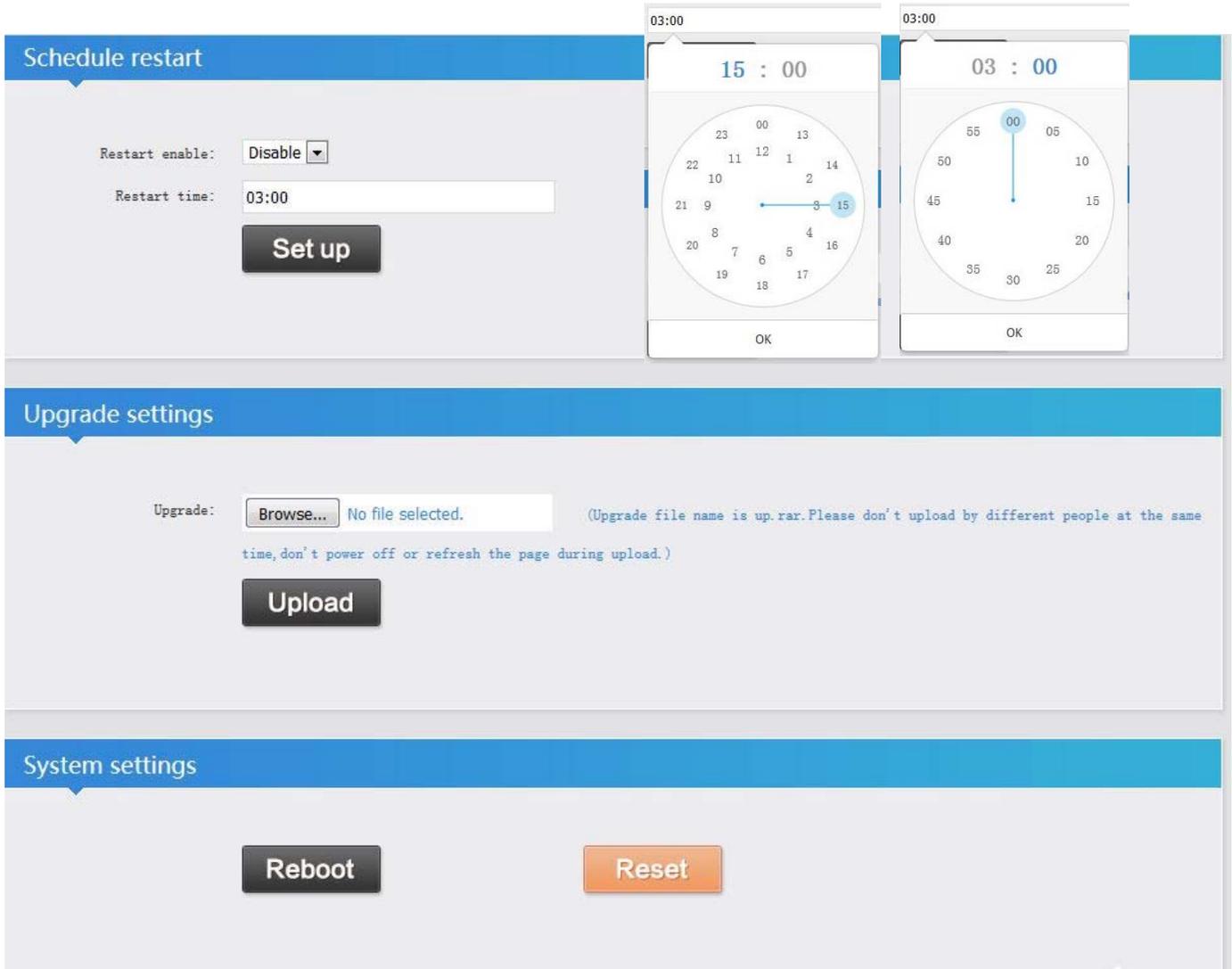
Set up

Serial to TCP

Baud Rate: 9600 ▾

TCP Port: 5150 [1-65535]

Set up



Schedule restart:

If you want to have the HD-ENC-H264 automatically reboot, refreshing its connection, you can enable the feature and apply a time for the restart to occur each day. Click on Setup to select the hour and then the minutes of the time to be set.

Upgrade Firmware:

If new firmware becomes available, we will provide a link to it on our website. If new firmware is available, download the file "up.rar" to your PC. Then, while in the web interface (above), browse for it, select the file, click "Upload". When you get the message "Upload Success", click "Reboot".

System Settings:

In this window you can either just **Reboot** the HD-ENC-H264 or press **Reset** and restore the encoder to default settings.

Restore to Default Settings

The settings can be restored to factory defaults in either of two ways:

1. Click the orange "**Reset**" button under the System settings (previous page)
2. Press in the "**Rst**" button on the outside of the HD-ENC-H264 and hold for 10 seconds. Then release.



Example of HD-ENC-H264 Encoder Settings to connect to YouTube Live Stream

(YouTube Live Dashboard)

The screenshot shows the YouTube Live Dashboard interface. The browser address bar displays `https://www.youtube.com/live_dashboard`. The page is currently in the 'OFFLINE' state. The left sidebar contains navigation options: 'TRANSLATIONS & TRANSCRIPTIONS', 'CREATE', 'YOUR CONTRIBUTIONS', and a 'Help and feedback' button. The main content area is divided into two sections: 'BASIC INFO' and 'ENCODER SETUP'. The 'BASIC INFO' section includes a title field with 'Oupree - Test', a description field, a 'Schedule next stream' checkbox, a 'Category' dropdown set to 'Nonprofits & Activism', and a 'Privacy' dropdown set to 'Private'. The 'ENCODER SETUP' section contains a 'Server URL' field with `rtmp://a.rtmp.youtube.com/live2`, a 'Stream name/key' field with `2x9a-y4d6-k8ep-er2u`, and buttons for 'Hide (10)' and 'Reset'. A warning icon and text state: 'Anyone with this key can live stream on your YouTube channel. Keep it secret.' A link for 'Advanced settings' is located at the bottom right of the 'BASIC INFO' section.

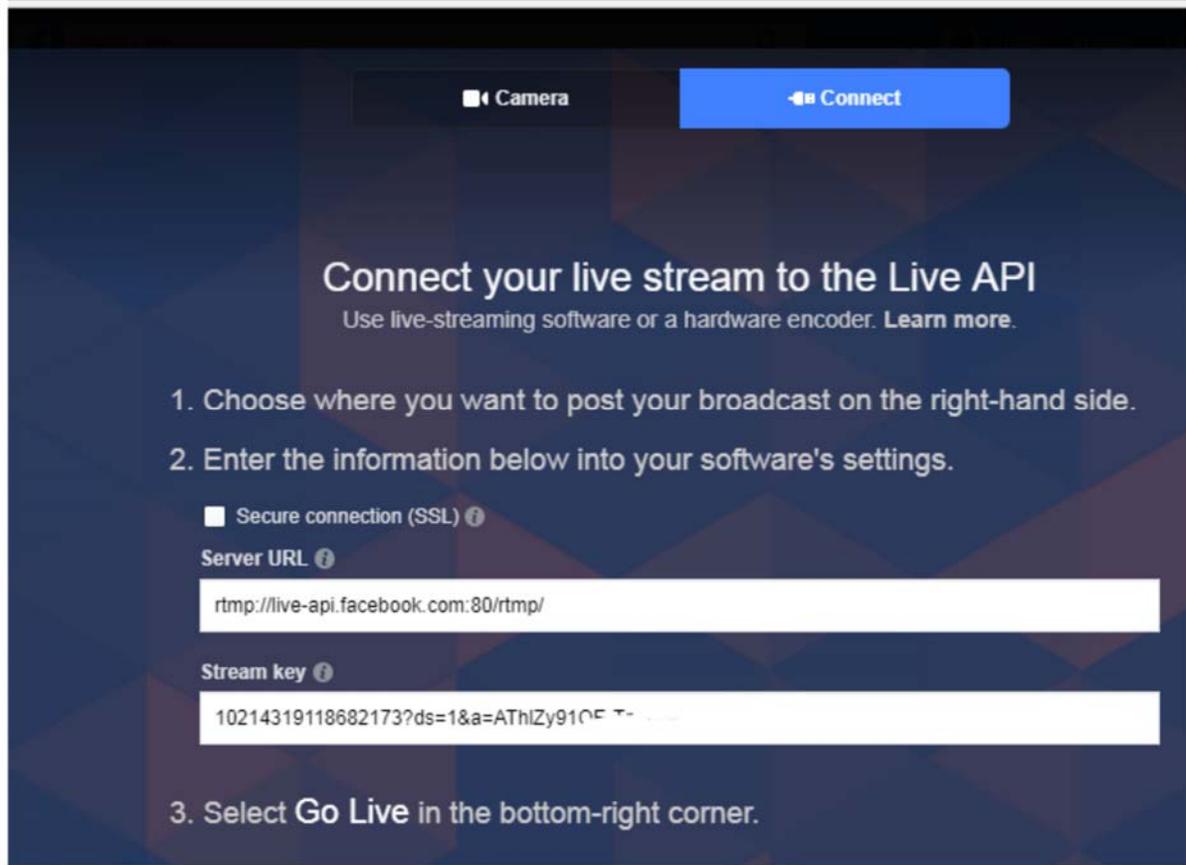
Based on the window above, the encoder input address for rtmp is `rtmp://a.rtmp.youtube.com/live2/2x9a-y4d6-k8ep-er2u`

`192.168.1.168/OutputP1MainE.html`

The screenshot shows a configuration interface for an encoder. It features several input fields and dropdown menus. The 'RTSP URL' field is set to `/0` with an 'Enable' dropdown. The 'Multicast IP' field is set to `238.0.0.1` with a 'Disable' dropdown. The 'Multicast port' field is set to `1234` with a range indicator `[1-65535]`. The 'Multicast type' dropdown is set to 'UDP'. The 'RTMP PUBLISH URL' field is set to `rtmp://a.rtmp.youtube.com/live2/2x9a-y4` with an 'Enable' dropdown. Below these fields, there is a text string: `rtmp://ip/xxx/xxx or rtmp://user:pass@ip/xxx/xxx`. A large 'Set up' button is positioned at the bottom of the configuration area.

Example of HD-ENC-H264 Encoder Settings to connect to Facebook Live Stream

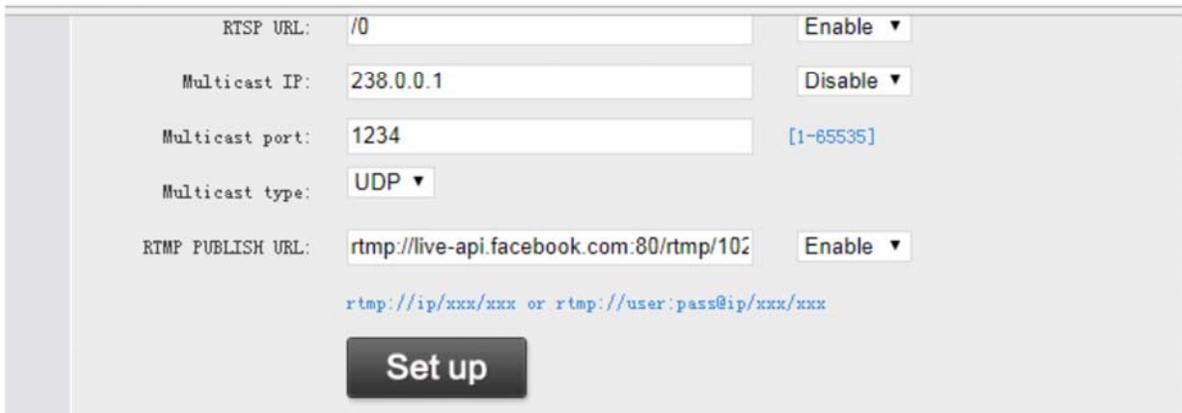
https://www.facebook.com/oupree



The screenshot shows the Facebook Live API connection interface. At the top, there are two buttons: "Camera" and "Connect". The main heading is "Connect your live stream to the Live API" with a sub-heading "Use live-streaming software or a hardware encoder. Learn more." Below this, there are three numbered steps: 1. Choose where you want to post your broadcast on the right-hand side. 2. Enter the information below into your software's settings. 3. Select Go Live in the bottom-right corner. Under step 2, there is a checkbox for "Secure connection (SSL)" which is checked. Below it are two input fields: "Server URL" containing "rtmp://live-api.facebook.com:80/rtmp/" and "Stream key" containing "10214319118682173?ds=1&a=AThZy91OEF...".

Based on the window above, the encoder input address for rtmp is
rtmp://live-api.facebook.com:80/rtmp/10214319118682173?ds=....

192.168.1.168/OutputP1MainE.html



The screenshot shows the encoder settings page. It has several input fields and dropdown menus: "RTSP URL:" with value "/0" and an "Enable" dropdown; "Multicast IP:" with value "238.0.0.1" and a "Disable" dropdown; "Multicast port:" with value "1234" and a "[1-65535]" range indicator; "Multicast type:" with a "UDP" dropdown; "RTMP PUBLISH URL:" with value "rtmp://live-api.facebook.com:80/rtmp/102" and an "Enable" dropdown. Below these fields is a small text string: "rtmp://ip/xxx/xxx or rtmp://user:pass@ip/xxx/xxx". At the bottom, there is a "Set up" button.

Encoder Control Guide

The following API commands can be used to control the HD-ENC-H264:

1. Get current encoder device status. Enter the following in the URL bar:

http://xxx.xxx.xxx.xxx/get_status

where xxx.xxx.xxx.xxx = the device IP address,

When opening the above link using a web browser, it will return the standard XML format, and the device status will be listed as :

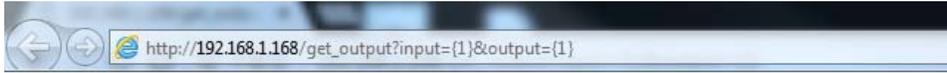
```
<img alt="Screenshot of a web browser showing an XML document tree for the device status API endpoint." data-bbox="103 179 587 943"/>A screenshot of a web browser window. The address bar shows the URL '192.168.1.168/get_status'. Below the address bar, a message states: 'This XML file does not appear to have any style information associated with it. The document tree is shown below.' The XML document tree is displayed with a tree view on the left side, showing the following structure:  
- <status>  
  - <version>2.83</version>  
  - <runtime>0000-05-16 09:20:46</runtime>  
  - <system>2018-09-06 15:43:08</system>  
  - <buildtime>Aug 15 2018 12:02:24</buildtime>  
  - <cpusage>21</cpusage>  
  - <memoryfree>75192</memoryfree>  
  - <memorytotal>91252</memorytotal>  
  - <net_packet_sent>55</net_packet_sent>  
  - <net_packet_dropped>0</net_packet_dropped>  
  - <lan_dhcp>  
    - <enable>0</enable>  
  - <aisamplerate>48000</aisamplerate>  
  - <aitick>3740</aitick>  
  - <g4>  
    - <dev_exist>0</dev_exist>  
  - <wifi>  
    - <dev_exist>0</dev_exist>  
  - <vi id="0">  
    - <framerate>60</framerate>  
    - <int_cnt>4801</int_cnt>  
    - <lost_int>2</lost_int>  
    - <width>1920</width>  
    - <height>1080</height>  
    - <interlaced>0</interlaced>  
    - <venc id="0">  
      - <left_pics>2</left_pics>  
      - <left_stream_bytes>0</left_stream_bytes>  
      - <left_stream_frames>0</left_stream_frames>  
      - <packs>0</packs>  
      - <enable>1</enable>  
      - <codec>96</codec>  
      - <width>1920</width>  
      - <height>1080</height>  
      - <framerate>30</framerate>  
      - <bitrate>1800</bitrate>  
      - <ts_url0>http://192.168.1.168/0.ts</ts_url0>  
      - <flv_url0>http://192.168.1.168/0.flv</flv_url0>  
      - <rtsp_url0>rtsp://192.168.1.168/0</rtsp_url0>  
    - </venc>  
    - <venc id="1">  
      - <left_pics>0</left_pics>  
      - <left_stream_bytes>0</left_stream_bytes>  
      - <left_stream_frames>0</left_stream_frames>  
      - <packs>0</packs>  
      - <enable>1</enable>  
      - <codec>96</codec>  
      - <width>1280</width>  
      - <height>720</height>  
      - <framerate>30</framerate>  
      - <bitrate>1800</bitrate>  
    - </venc>  
    - <venc id="2">  
      - <left_pics>0</left_pics>  
      - <left_stream_bytes>0</left_stream_bytes>  
      - <left_stream_frames>0</left_stream_frames>  
      - <packs>0</packs>  
      - <enable>1</enable>  
      - <codec>96</codec>  
      - <width>640</width>  
      - <height>360</height>  
      - <framerate>30</framerate>  
      - <bitrate>1800</bitrate>  
    - </venc>  
    - <venc id="3">  
      - <left_pics>0</left_pics>  
      - <left_stream_bytes>0</left_stream_bytes>  
      - <left_stream_frames>0</left_stream_frames>  
      - <packs>0</packs>  
      - <enable>1</enable>  
      - <codec>96</codec>  
      - <width>640</width>  
      - <height>360</height>  
      - <framerate>30</framerate>  
      - <bitrate>1800</bitrate>  
    - </venc>  
  - </vi>  
  - <user>  
    - <ts>0</ts>  
    - <flv>0</flv>  
    - <pri>0</pri>  
    - <web>6</web>  
    - <rtsp>0</rtsp>  
  - </user>  
- </status>
```

2. Get the encoding status

http://192.168.1.168/get_output?input={0}&output={0}

input_id is the device input ID, the 1st channels is 0, and 2nd is 1, etc.

output_id is the output stream ID, the main stream is 0, and Substream is 1, etc.



```
<?xml version="1.0" encoding="UTF-8"?>
- <output>
  <input>0</input>
  <output>0</output>
  <aenc_codec>0</aenc_codec>
  <aenc_bitrate>128000</aenc_bitrate>
  <venc_enable>1</venc_enable>
  <venc_codec>96</venc_codec>
  <venc_gop>30</venc_gop>
  <vi_cap_width>1920</vi_cap_width>
  <vi_cap_height>1080</vi_cap_height>
  <venc_width_height_same_as_input>1</venc_width_height_same_as_input>
  <venc_width>1920</venc_width>
  <venc_height>1080</venc_height>
  <venc_framerate>30</venc_framerate>
  <venc_profile>1</venc_profile>
  <venc_rc_mode>1</venc_rc_mode>
  <venc_bitrate>1800</venc_bitrate>
  <http_private_enable>1</http_private_enable>
  <http_private_uri>/0.pte</http_private_uri>
  <http_ts_enable>1</http_ts_enable>
  <http_ts_uri>/0.ts</http_ts_uri>
  <http_hls_enable>0</http_hls_enable>
  <http_hls_uri>/0.m3u8</http_hls_uri>
  <http_flv_enable>1</http_flv_enable>
  <http_flv_uri>/0.flv</http_flv_uri>
  <rtsp_enable>1</rtsp_enable>
  <rtsp_uri>/0</rtsp_uri>
  <rtmp_enable>0</rtmp_enable>
  <rtmp_publish_uri>rtmp://192.168.1.50/live/0</rtmp_publish_uri>
  <multicast_enable>0</multicast_enable>
  <multicast_ip>238.0.0.1</multicast_ip>
  <multicast_port>1234</multicast_port>
  <unicast_enable>0</unicast_enable>
  <unicast_ip/>
  <unicast_port>1000</unicast_port>
</output>
```

Key & Val:

Key	Val (value type)	Description
input	int	Default value 0: a certain channel input
output	int	[0-3]: 0-Main Stream, 1 Substream 1 etc.,
aenc_codec	int	0 AAC 1 AAC+ 2 AAC++ 4 MP3 6 MP2 7 AC3
aenc_bitrate	int	Audio bitrate - bps AAC [48000-320000] AAC+ [24000-48000] AAC++ [12000-32000] MP3 [64000-320000] MP2 [64000-320000] AC3 [40000-640000]

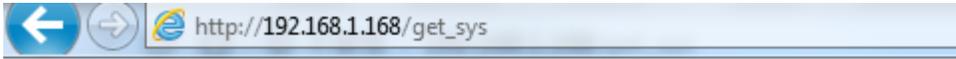
venc_enable	int	[0-1]: Encoding, 1-enable, 0-disable Read only.
venc_codec	int	Encoding type : 96 H264 265 H265(only H265 Encoder supports)
venc_gop	int	[5-300] Keyframe interval
vi_cap_width	int	Get the input video width, Read only.
vi_cap_height	int	Get the input video height, Read only.
venc_width_height_same_sa_input	int	[0-1]: 1- encoding resolution same as input hdmi. 0-encoding resolution as settings
venc_width	int	Video Encoding width
venc_height	int	Video Encoding height
venc_framerate	int	[5-60] fps
venc_profile	int	Only works with H264 Encoding 0 base profile 1 main profile 2 high profile
venc_rc_mode	int	Bitrate control: 0 cbr 1 vbr
venc_bitrate	int	[32-32000] Bitrate (kbps)
http_private_enable	int	[0-1] HTTP private protocol , 1 – enable, Read only.
http_private_uri	String	Beginning with '/', i.e. '/0.pte'
http_ts_enable	int	[0-1] http TS stream 1-enable, 0-disable.
http_ts_uri	String	Beginning with '/', i.e. '/0.ts'
http_hls_enable	int	[0-1] http hls stream 1-enable, 0-disable.
http_hls_uri	String	Beginning with '/', i.e. '/0.m3u8'
http_flv_enable	int	[0-1] http flv stream 1-enable, 0-disable.
http_flv_uri	String	Beginning with '/', i.e. '/0.flv'
rtsp_enable	int	[0-1] http rtsp stream 1-enable, 0-disable.
rtsp_uri	String	Beginning with '/', i.e. '/0'
rtmp_enable	int	[0-1] rtmp stream 1-enable, 0-disable.
rtmp_publish_uri	String	Rtmp://server-ip:port/app/streamname
multicast_enable	int	[0-1] udp 1-enable, 0-disable.
multicast_ip	String	IP such as 224.0.0.1
multicast	int	Port such as 1234

IE. To setup the 1st hdmi input- Main stream resolution set at 1920x1080@25fps, GOP 30, the URL command will be

http://xxx.xxx.xxx.xxx/set_output?input=0&output=0&venc_width=1920&venc_height=1080&venc_framerate=25&venc_gop=30

4. To get the device information

http://xxx.xxx.xxx.xxx/get_sys



```
<?xml version="1.0" encoding="UTF-8"?>
- <sys>
  <ip>192.168.1.168</ip>
  <netmask>255.255.255.0</netmask>
  <gateway>192.168.1.1</gateway>
  <mac>00:13:14:15:9A:52</mac>
  <dhcp_enable>0</dhcp_enable>
  <g4_dev_exist>0</g4_dev_exist>
  <wifi_dev_exist>0</wifi_dev_exist>
  <dns0>8.8.8.8</dns0>
  <dns1>192.168.1.1</dns1>
  <http_port>8080</http_port>
  <rtsp_port>8554</rtsp_port>
  <rtsp_g711>0</rtsp_g711>
  <rtsp_g711_8k>0</rtsp_g711_8k>
  <rtsp_g711_mu>0</rtsp_g711_mu>
  <audio_left_right>0</audio_left_right>
  <ts_over_rtsp>0</ts_over_rtsp>
  <rtp_multicast>0</rtp_multicast>
  <udp_ttl>64</udp_ttl>
  <udp_sock_buf_size>20971520</udp_sock_buf_size>
  <html_password>admin</html_password>
  <hostname>encoder</hostname>
  <language>chinese</language>
</sys>
```

5. To set up the device

http://xxx.xxx.xxx.xxx/set_sys?key=val

Key & Val:

Key	Val (value type)	Description
ip	String	Wired Network IP
netmask	String	Wired Network subnet mask
gateway	String	Wired Network Gateway
mac	String	Wired Network MAC
dhcp_enable	int	[0-1] Wired Network DHCP. 1-enable, 0-disable.
g4_dev_exist	int	[0-1] 4G network 0-N/A 1-have Read only
g4_enable	int	[0-1] 1-enable, 0-disable 4G
g4_apn	String	APN set up
wifi_dev_exist	int	[0-1] For WiFi Module 0-Not 1-Have, Read only
wifi_enable	int	[0-1] 1-enable, 0-disable WiFi
wifi_ap_mode	int	0 WiFi works as STA 1 WiFi works as AP
wifi_hostap_essid	String	WiFi AP Name
wifi_hostap_psk	String	WiFi AP password
wifi_hostap_channel	int	WiFi AP Signal channel
wifi_essid	String	WiFi for connection name
wifi_psk	String	WiFi password

wifi_ip	String	WIFI network IP
wifi_netmask	String	WIFI-subnet mask
wifi_gateway	String	WIFI-Gateway
wifi_dhcp_enable	int	WIFI- DHCP
dns0	String	DNS0
dns1	String	DNS1
http_port	int	HTTP port
rtsp_port	int	RTSP backup port
rtsp_g711	int	[0-1] 1-enable, 0-disable RTSP enable G711
rtsp_g711_8k	int	[0-1] 1-enable, 0-disable 8K-G711
rtsp_g711_mu	int	0 G711U 1 G711A
audio_left_right	int	0 Stereo 1 Left 2 Right
ts_over_rtsp	int	0 RTSP- ES 1 RTSP-TS
rtp_multicast	int	0 Multicast - UDP 1 Multicast - RTP
udp_ttl	int	[1-254] UDP-TTL
udp_sock_buf_size	int	udp socket buffering size
html_password	String	Web password
hostname	String	Device hostname

6. Reboot Device

<http://xxx.xxx.xxx.xxx/reboot>

succeed / failed

7. Reset

<http://xxx.xxx.xxx.xxx/reset>

Succeed

Failed

8. Command with Username and Password

<http://username:password@xxx.xxx.xxx.xxx/>

I.E. [http:// admin: admin@192.168.1.168/reboot](http://admin:admin@192.168.1.168/reboot)

9. Get Device Version

http://xxx.xxx.xxx.xxx/get_version

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<version> 2.84</version>
```

10. Get advanced settings

http://xxx.xxx.xxx.xxx/get_adv

```
▼ <adv>
  <interlaced_only_bottom>1</interlaced_only_bottom>
  <field_to_frame>0</field_to_frame>
  <ts_muxer>1</ts_muxer>
  <ts_once>7</ts_once>
  <https_password_enable>0</https_password_enable>
  <g4_gw_as_dns>1</g4_gw_as_dns>
  <nntp_server>time.windows.com</nntp_server>
  <nntp_enable>0</nntp_enable>
  <time_zone>8</time_zone>
  <hls_buffer_number>5</hls_buffer_number>
  <hls_splitter_time>10</hls_splitter_time>
  <ts_transport_stream_id>101</ts_transport_stream_id>
  <ts_pmt_start_pid>480</ts_pmt_start_pid>
  <ts_start_pid>481</ts_start_pid>
  <ts_tables_version>6</ts_tables_version>
  <ts_rc_mode>0</ts_rc_mode>
  <ts_service_name>Live</ts_service_name>
  <ts_service_provider>Encoder</ts_service_provider>
  <vmix_compatible>0</vmix_compatible>
  <audio_only>0</audio_only>
  <video_only>0</video_only>
  <auto_super_frame_reencode>1</auto_super_frame_reencode>
  <slice_split_enable>0</slice_split_enable>
  <slice_split_size>1024</slice_split_size>
  <min_qp>5</min_qp>
  <max_qp>42</max_qp>
  <i_qp>5</i_qp>
  <p_qp>42</p_qp>
  <schedule_restart_enable>0</schedule_restart_enable>
  <schedule_restart_time>180</schedule_restart_time>
  <net_packet_drop_threshold>5000</net_packet_drop_threshold>
  <remserial_baudrate>9600</remserial_baudrate>
  <remserial_tcp_port>5150</remserial_tcp_port>
  <csc_enable>0</csc_enable>
  <csc_contrast>64</csc_contrast>
</adv>
```

11. Set up advanced settings

http://xxx.xxx.xxx.xxx/set_adv?key=val

Key & Val:

Key	Val (value type)	Description
interlaced_only_bottom	int	0 Deinterlaced – both (Weaving) 1 Bottom Only
field_to_frame	int	[0-1] Field To Frame (Line doubling) 1-enable, 0-disable
ts_muxer	int	0 TS – VLC 1 TS-FFMPEG
ts_once	int	[3-128] TS once pack
https_password_enable	int	[0-1] HTTP TS enable password 1-enable, 0-disable
ntp_server	String	NTP Server
ntp_enable	int	[0-1] NTP Sync 1-enable, 0-disable
time_zone	int	[-12-12] time zone UTC-12 - UTC+12
ts_transport_stream_id	int	----
ts_pmt_start_pid	int	---
ts_start_pid	int	---
ts_tables_version	int	---
ts_rc_mode	int	Null packets insert to TS 0 No 12 insert (1.2x) 13 insert (1.3x) 15 insert (1.5x) 20 insert (2x) 25 insert (2.5x) 30 insert (3x) 35 insert (3.5x)
ts_service_name	String	TS Service Name
ts_service_provider	String	TS Publisher
vmix_compatible	int	[0-1] compatible with VMIX 1-enable, 0-disable
audio_only	int	[0-1] 1-enable, 0-disable
video_only	int	[0-1] 1-enable, 0-disable
auto_super_frame_reencode	int	[0-1] 1-enable, 0-disable
slice_spilt_enable	int	[0-1] 1-enable, 0-disable
slice_split_size	int	[128-65535] Slice size
min_qp	int	[1-35]
max_qp	int	[min_qp - 50]
schedule_restart_enable	int	[0-1] restart encoder 1-enable, 0-disable
schedule_restart_time	int	
net_packet_drop_threshold	int	[50-50000]
remserial_baudrate	int	
remserial_tcp_port	int	[1-65535] TCP Port
csc_enable	int	[0-1] CSC 1-enable, 0-disable
csc_contrast	int	[0-255] set contrast for stream

12. Get input video signals

http://xxx.xxx.xxx.xxx/get_input

```
<?xml version="1.0" encoding="ISO-8859-1"?>
- <input>
  <input>0</input>
  <ai_samplerate>48000</ai_samplerate>
  <aenc_samplerate>44100</aenc_samplerate>
  <aenc_bitrate>128000</aenc_bitrate>
  <aenc_codec>4</aenc_codec>
  <aenc_input>0</aenc_input>
  <analog_vol>10</analog_vol>
  <digital_vol>0</digital_vol>
  <vi_cap_x>0</vi_cap_x>
  <vi_cap_y>0</vi_cap_y>
  <vi_cap_width>1920</vi_cap_width>
  <vi_cap_height>1080</vi_cap_height>
  <vi_cap_framerate>50</vi_cap_framerate>
  <vi_cap_interlaced>0</vi_cap_interlaced>
</input>
```

13. To get OSD info

http://xxx.xxx.xxx.xxx/get_osd?enc_chn={output_id}&osd_chn={osd_id}

```
<?xml version="1.0" encoding="ISO-8859-1"?>
- <osd>
  <enable>1</enable>
  <type>0</type>
  <x>10</x>
  <y>10</y>
  <alpha>100</alpha>
  <font_size>36</font_size>
  <color>0</color>
  <bcolor>16777215</bcolor>
  <txt>今天是2018年7月12号</txt>
  <bmp>null</bmp>
</osd>
```

14. To set OSD

http://xxx.xxx.xxx.xxx/set_osd?enc_chn={output_id}&osd_chn={osd_id}&key_val

Key & Val:

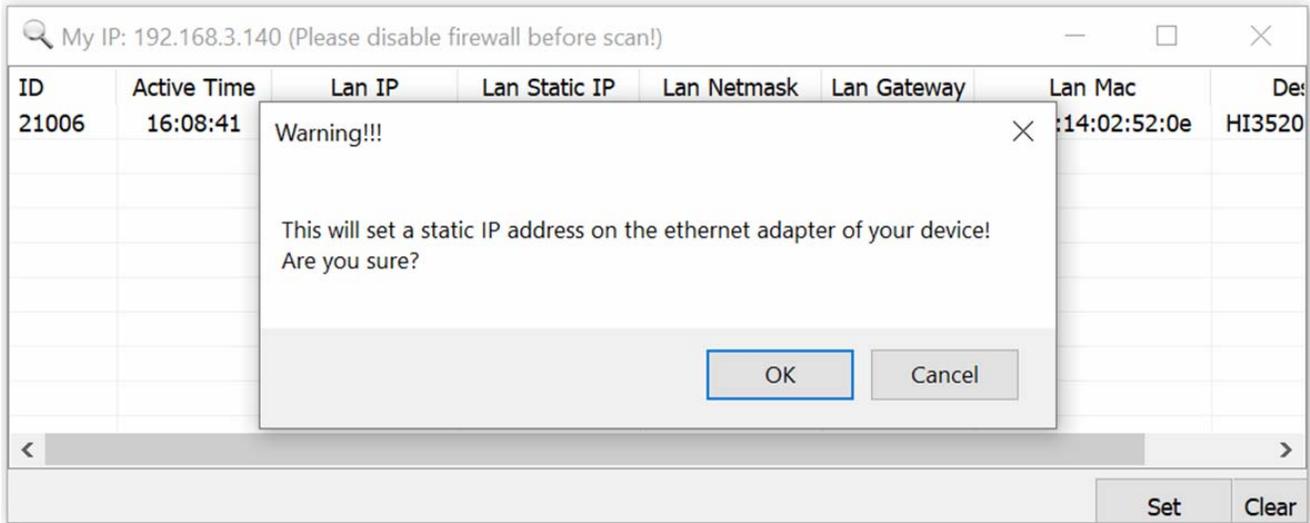
Key	Val (value type)	Description
output_id	int	[0-3]
osd_id	int	[0-3]
enable	int	[0-1]
type	int	0 TXT 1 BMP 10 scroll txt 11 NTP time
x	int	Position - coordinate
y	int	Same as X
alpha	int	[0-128] OSD transparency
font_size	int	[8-72]
color	int	Text color
bcolor	int	Background color
txt	String	TXT OSD - contents
bmp	String	BMP file name

15. Get WiFi AP information

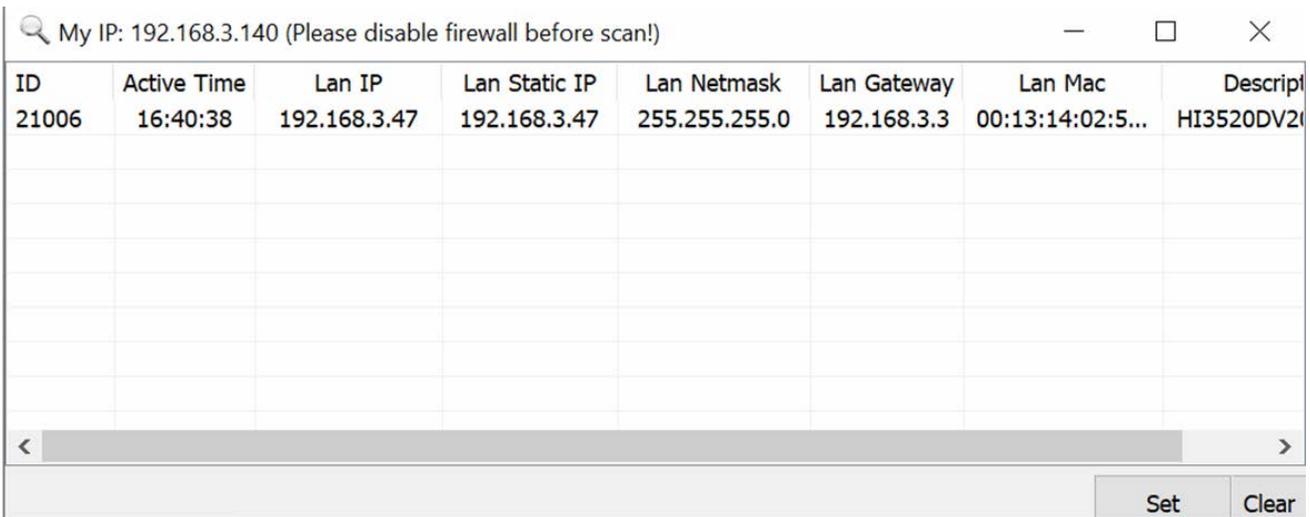
http://xxx.xxx.xxx.xxx/get_wif

```
<?xml version="1.0" encoding="ISO-8859-1"?>
- <wifi>
  - <ap id="0">
    <mac>e4:a7:c5:05:6a:64</mac>
    <frequency>2412</frequency>
    <level>92</level>
    <ssid>neworange2</ssid>
  </ap>
  - <ap id="1">
    <mac>94:d9:b3:74:55:3d</mac>
    <frequency>2412</frequency>
    <level>68</level>
    <ssid>CY-3</ssid>
  </ap>
  + <ap id="2">
  + <ap id="3">
  + <ap id="4">
  + <ap id="5">
  + <ap id="6">
  + <ap id="7">
  + <ap id="8">
  + <ap id="9">
  + <ap id="10">
  + <ap id="11">
</wifi>
```


2. Click "OK" in the next window to confirm.



3. Close the software and reopen it, OR click the "Clear" button. Within 30 seconds, the user should see that the unit's IP settings (Lan IP, Lan Static IP, Lan Netmask, and Lan Gateway) are updated.



Note: The Discover Tool CANNOT enable/disable DHCP for a unit. If the user sets a static IP for a DHCP-enabled unit using this tool, it will not take effect. The unit will still have the DHCP IP address under "Lan IP".

ONVIF Discovery Tool

ONVIF is enabled on the HD-ENC-H264 by default. Users can also use an ONVIF discovery tool to discover the device's IP address (for example <https://sourceforge.net/projects/onvifdm/>).

SPECIFICATIONS

Video

- One female HDMI-A port for source connection.
- Supported resolutions: 720p/1080i/1080p @50/60Hz and below including:

1920x1080	720x540	608x448	480x272	320x256
1680x1056	720x480	544x480	480x270	320x240
1280x720	720x404	480x480	400x320	320x180
1024x576	704x576	480x384	400x224	240x180
850x480	640x480	480x360	352x480	176x144
720x576	640x360	480x320	352x228	

- Codec: H.264/AVC High/Main/Baseline
- Bit rate: 0.1 to 32 Mbps, adjustable
 - Bit rate control: VBR/CBR
- Frames per second: 5 to 60 FPS

Audio

- HDMI embedded audio.
- Sample rates: 44.1 kHz, 48.0 kHz
- Codec: AAC/AAC+/AAC++/MP3
- Bit rate: 0.1 to 32 Mbps, adjustable

Ethernet Port

- One female RJ45 connector.
- 100 Base-T Ethernet interface.

Protocols

- HTTP, HLS, FLV, RTSP, UDP, RTMP, ONVIF
 - ONVIF: G.711

Dimensions

WxDxH: 5.16x6.57x1.14 in. (131x167x29mm)

Power

- Input: 110 or 240 VAC at 50 or 60 Hz via AC adapter (US AC adapter included).
- Optional universal power plug adapters available (not included).
- Output: 12VDC, 1A

Environmental

- Operating temperature: 32 to 104°F (0 to 40°C).
- Storage temperature: -4 to 158°F (-20 to 70°C).
- Operating and storage relative humidity: 5 to 90% non-condensing RH.

Regulatory Approvals

CE, FCC, RoHS

Cables

- Use HD-xx-MM cable to connect an HDMI video source (not included).
- Use CAT5e/6 solid or stranded straight through cable for TIA/EIA-568B wiring terminated with standard RJ45 connectors (not included).

Note: The MTU (Maximum Transmission Unit) setting for the HD-ENC-H264 cannot be changed and is not variable.