datavideo

4 CHANNEL STREAMING ENCODER/RECODER

NVS-40

Instruction Manual

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Disclaimer of Product & Services

The information offered in this instruction manual is intended as a guide only. At all times, Datavideo Technologies will try to give correct, complete and suitable information. However, Datavideo Technologies cannot exclude that some information in this manual, from time to time, may not be correct or may be incomplete. This manual may contain typing errors, omissions or incorrect information. Datavideo Technologies always recommend that you double check the information in this document for accuracy before making any purchase decision or using the product. Datavideo Technologies is not responsible for any omissions or errors, or for any subsequent loss or damage caused by using the information contained within this manual. Further advice on the content of this manual or on the product can be obtained by contacting your local Datavideo Office or dealer.

FCC Compliance Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) This device must accept any interference received, including interference that may cause undesired operation.

Warnings and Precautions

1. Read all of these warnings and save them for later reference.
2. Follow all warnings and instructions marked on this unit.
3. Unplug this unit from the wall outlet before cleaning. Do not use liquid or aerosol cleaners. Use a damp cloth for cleaning.
4. Do not use this unit in or near water.
5. Do not place this unit on an unstable cart, stand, or table. The unit may fall, causing serious damage.
6. Slots and openings on the cabinet top, back, and bottom are provided for ventilation. To ensure safe and reliable operation of this unit, and to protect it from overheating, do not block or cover these openings. Do not place this unit on a bed, sofa, rug, or similar surface, as the ventilation openings on the bottom of the cabinet will be blocked. This unit should never be placed near or over a heat register or radiator. This unit should not be placed in a built-in installation unless proper ventilation is provided.
7. This product should only be operated from the type of power source indicated on the marking label of the AC adapter. If you are not sure of the type of power available, consult your Datavideo dealer or your local power company.
8. Do not allow anything to rest on the power cord. Do not locate this unit where the power cord will be walked on, rolled over, or otherwise stressed.
9. If an extension cord must be used with this unit, make sure that the total of the ampere ratings on the products plugged into the extension cord do not exceed the extension cord rating.
10. Make sure that the total amperes of all the units that are plugged into a single wall outlet do not exceed 15 amperes.
11. Never push objects of any kind into this unit through the cabinet ventilation slots, as they may touch dangerous voltage points or short out parts that could result in risk of fire or electric shock. Never spill liquid of any kind onto or into this unit.
12. Except as specifically explained elsewhere in this manual, do not attempt to service this product yourself. Opening or removing covers that are marked "Do Not Remove" may expose you to dangerous voltage points or other risks, and will void your warranty. Refer all service issues to qualified service personnel.

13. Unplug this product from the wall outlet and refer to qualified service personnel under the following conditions:
    a. When the power cord is damaged or frayed;
    b. When liquid has spilled into the unit;
    c. When the product has been exposed to rain or water;
    d. When the product does not operate normally under normal operating conditions. Adjust only those controls that are covered by the operating instructions in this manual; improper adjustment of other controls may result in damage to the unit and may often require extensive work by a qualified technician to restore the unit to normal operation;
    e. When the product has been dropped or the cabinet has been damaged;
    f. When the product exhibits a distinct change in performance, indicating a need for service.

Warranty

Standard Warranty

- Datavideo equipment are guaranteed against any manufacturing defects for one year from the date of purchase.
- The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.
- The product warranty period beings on the purchase date. If the purchase date is unknown, the product warranty period begins on the thirtieth day after shipment from a Datavideo office.
- All non-Datavideo manufactured products (product without Datavideo logo) have only one year warranty from the date of purchase.
- Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered under warranty.
- Viruses and malware infections on the computer systems are not covered under warranty.
- Any errors that are caused by unauthorized third-party software installations, which are not required by our computer systems, are not covered under warranty.
- All mail or transportation costs including insurance are at the expense of the owner.
- All other claims of any nature are not covered.
- All accessories including headphones, cables, and batteries are not covered under warranty.
- Warranty only valid in the country or region of purchase.
- Your statutory rights are not affected.

Three Year Warranty

- All Datavideo products purchased after July 1st, 2017 are qualified for a free two years extension to the standard warranty, providing the product is registered with Datavideo within 30 days of purchase.
- Certain parts with limited lifetime expectancy such as LCD panels, DVD drives, Hard Drive, Solid State Drive, SD Card, USB Thumb Drive, Lighting, Camera module, PCIe Card are covered for 1 year.
- The three-year warranty must be registered on Datavideo's official website or with your local Datavideo office or one of its authorized distributors within 30 days of purchase.

Disposal
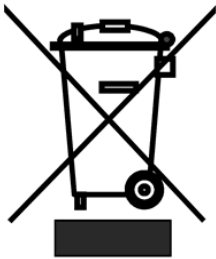
For EU Customers only - WEEE Marking

This symbol on the product or on its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, your household waste disposal service or the shop where you purchased the product.

CE Marking is the symbol as shown on the left of this page. The letters "CE" are the abbreviation of French phrase "Conformité Européene" which literally means "European Conformity". The term initially used was "EC Mark" and it was officially replaced by "CE Marking" in the Directive 93/68/EEC in 1993. "CE Marking" is now used in all EU official documents.

Chapter 1　　Product Overview

The Datavideo NVS-40 is a 4 Channel Streaming Encoder/Recorder which features streaming and recording features in a single device to help producers or users to record and stream high quality videos simultaneously by setting different video formats and bitrates according to different applications and internet bandwidths.

The Datavideo NVS-40 supports SDI x 1 and HDMI x 4 video inputs (Channel 1 source can be either SDI or HDMI). The NVS-40 allows up to 4 1080P signal sources to be encoded to 8 streamings in different bitrates simultaneously. The NVS-40 records up to 4 inputs and 1 output channel video signals to hard disk or live-streams those videos to up to 10 different streaming platforms at the same time.

Moreover, The NVS-40 also allows external XLR balanced audio and RCA unbalanced audio input sources. It can also be an ISO recorder to record backup files for each input channel. The NVS-40 can be a Video IP switcher to switch between different videos via internet connection which is suitable to control remotely.

Furthermore, the 2.5" HDD/SSD inserted into the NVS-40 front panel can be formatted in NTFS, FAT and exFAT formats which allow users to record single video file that the file size exceeds 4GB.

1.1 Big Five Features
- Four Input Channels for Video Encoding/Capturing/Streaming
- H.264 Streaming and Recording Simultaneously
- Video IP Switcher
- ISO Recorder for 4 Input Channels and 1 Program Output.
- Quad View/PIP/POP/Full Screen/PBP Screen Layouts.

1.2 Features
- Four Channel for Video Capturing/Encoding/Streaming
- H.264/AVC High Profile Level
- Configurable Bit Rate up to 30Mbps per Channel
- Independent Encoder Settings for Simultaneously Streaming and Recording
- Built-in de-interlacer
- Built-in Video Scaler: Resized Resolution Range from 160 x120 to 1920 x1080
- Isolated/PIP/PBP (Picture By Picture) Video Processing Modes.
- Dynamic Parameter Settings Adjustment: GOP Size, Frame Rate, Bit Rate.

- Multi-language Web UI including English, Simplified Chinese, Japanese and Traditional Chinese (Will be Available Soon)
- Dual Color LED Indicator Showing the status or detections. (About LED indicator related sections, please refer to Appendix1 and Appendix2).

Supported input formats

- 1080p at 23.98/24/25/29.97/30/50/59.94/60 fps
- 1080i at 50/59.94/60 fps
- 720p at 50/59.94/60 fps
- 576i at 50 fps
- 480i at 59.94 fps

Web UI supported operating systems and web browsers

- Operating systems
  - Microsoft Windows 8.1 (64-bit)
  - Microsoft Windows 10 (64-bit)
- Web browsers
  - Microsoft Internet Explorer
  - Google Chrome

Streaming

- RTSP, RTMP, RTMPS、TS and HLS streaming protocols for use on:
  - Adobe Media Server, Wowza Media Server
  - Software video players such as QuickTime and VLC
  - Content Delivery Networks (CDNs) such as YouTube Live, Ustream and etc.

Recording

- Recording format
  - MOV,MP4 and TS file formats on a FAT, NTFS or exFAT file system

Chapter 2   Connections and Controls

2.1 Front Panel

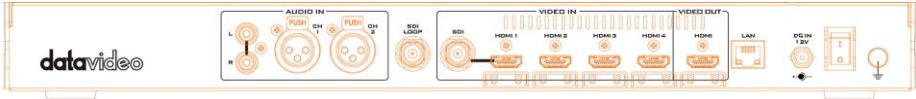| Stream and Recording	
STREAM	**Stream Button** Press this button to activate the RTMP/RTMPS/RTSP stream and press again to stop streaming. **Note: Pressing the Stream button starts the stream for that device only and this stream button is used when you want to stream directly through the NVS-40 device rather than by the NVS-40 Web UI.**

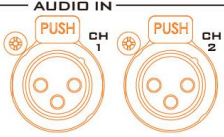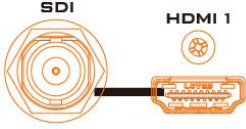|	
RECORD (image of round record button)	**Record Button** Press the Record button to start recording your input source to the 2.5" SSD or HDD inserted into the front panel of the NVS-40. Press the Record button again to stop the recording. **Note: Pressing the Record button starts recording for that device only and this record button is used when you want to record directly through the NVS-40 device rather than by the NVS-40 Web UI.**
Note: If you want to start/stop streaming and recording at the same time, press and hold the Stream and Record buttons and then release them at the same time. Please pay attention to the LED indicator status after pressing the buttons.	
MODE (image of round mode button)	**Mode Button** Due to that the first channel of the video inputs on the rear panel of the NVS-40 can either be SDI or HDMI, Press the Mode button to switch between the SDI and HDMI Mode.
LED Indicator	
PWR (image of round power LED)	**Power LED** The Power LED Indicates the Power status. Red LED is On: system reboot/program initialization Red LED is Blinking: Error Green LED is On: system is ready.

	SDI LED The SDI LED indicates the status of the first input channel. The first input channel of the NVS-40 allows either SDI or HDMI source. If the input for the first channel is SDI source, this SDI LED will be lit. Red LED is Blinking : Error Green LED is On: Input source is OK.
	HDMI LED The HDMI LED indicates the status of the first input channel. The first input channel of the NVS-40 allows either SDI or HDMI source. If the input for the first channel is HDMI source, this HDMI LED will be lit. Red LED is Blinking : Error Green LED is On: Input sources are OK.
	Record LED The Record LED indicates whether current status is in Record Mode or not. If the NVS-40 operates in Record Mode, then this Record LED will be lit. Red LED is Blinking : Error Green LED is On: Recording is started.
	Stream LED The Stream LED indicates whether current status is in Stream Mode or not. If the NVS-40 operates in Stream Mode, then this Stream LED will be lit. Red LED is Blinking : Error Green LED is On: Streaming is started.
USB Port	

USB ⟵⟶ [⬜ ⬜ ⬜ ⬜]	**USB Port** The USB port on the front panel of the NVS-40 is used for firmware update. **Note: The USB port on the front panel of the NVS-40 is used for firmware update. The backup recording of the NVS-40 will be saved in the HDD or SSD inserted into the right side of the front panel.**
2.5" SSD/HDD	
[enclosure image]	**2.5" SSD/HDD Enclosure and 2.5" SSD/HDD Tray** This 2.5" SSD/HDD enclosure is used for users to install the 2.5" SSD or HDD. The Steps for installing the SSD/HDD 1. Remove the top cover of the SSD/HDD enclosure. 2. Please place your SSD or HDD into the enclosure. Please pay attention that the side with the SATA connector should be placed toward the direction of the rear panel of the SSD/HDD enclosure. 3. Please cover the top lid of the SSD/HDD enclosure. 4. Please screw the 4 screws into both sides of the SSD/HDD enclosure again. 5. Please insert the SSD/HDD enclosure into the SSD/HDD tray again to finish the SSD/HDD installation procedure.
LOCK UNLOCK ○ [⊙◻○]	**Lock/Unlock Switch and the LED Indicator** When the enclosure is inserted, slides the switch to the Lock side will lock the enclosure. The enclosure can be pulled out when the switch slides to the side of Unlock.

|	The LED indicator shows the Lock/Unlock status of the SSD/HDD enclosure. When the SATA interface is connected correctly and the Lock/Unlock switch is pushed to the lock side, the SSD/HDD LED indicator will be lit. Green LED is On: The installation is finished/The SSD/HDD is ready Green LED is Blinking: In the recording LED is Off: SSD/HDD is removed/Error

2.2 Rear Panel

Audio Input	
	RCA Unbalanced Audio Input Allows you to input an unbalanced stereo analog audio source for streaming and recording.
	XLR Balanced Audio Inputs Allows you to input up to two XLR balanced analog audio sources (CH1 & CH2) for streaming and recording.
Video Input	
	SDI/HDMI Input (for Channel 1 Video Input Only) Connect an SDI or HDMI video source to this SDI/HDMI video input interface. **Note: The video input source for the NVS-40 Channel 1 video input can be either SDI or HDMI source. However, the HDMI video input source is the only format that can be accepted by the video inputs of Channel 2, Channel 3 and Channel 4. HDCP mode is not supported by HDMI interface.**
	HDMI 2 Connect an HDMI video source to this HDMI video input interface. HDCP mode is not supported by HDMI interface.
	HDMI 3 Connect an HDMI video source to this HDMI video input interface. HDCP mode is not supported by HDMI interface.
	HDMI 4 Connect an HDMI video source to this HDMI video input interface. HDCP mode is not supported by HDMI interface.
SDI Loop	

SDI LOOP	Connect an SDI cable from this connector to a monitor or projector with the SDI interface to output the SDI input source
Others	
LAN	**LAN** The LAN port is an auto-negotiation 10/100/1000 Base-T Ethernet port which connects the NVS-40 to an Ethernet network through a standard RJ-45 Ethernet cable.
DC IN 12V	**DC IN 12V Power Connector** Power the NVS-40 device by connecting the device to an AC outlet through a power cord and a power adapter. To power off the NVS-40, simply disconnect the device from the power source and any logged errors will be cleared. All current settings are kept even after the device is powered off.
I O	**Power Switch** You can switch this power switch for powering-on or powering-off the NVS-40.
	This is the Ground.

Chapter 3   System Diagram
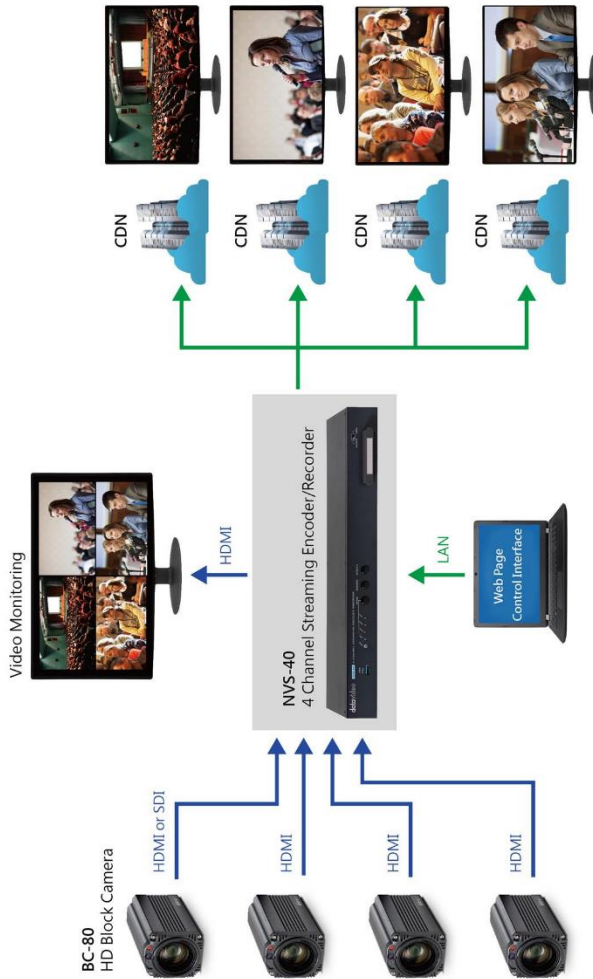
Chapter 4   Quick Start Guide-Connection and Setting

Before you start to use the NVS-40, it is very important that you have to connect all necessary cables and to complete the network and HDD settings. Due to the fact that the NVS-40 can only be controlled by the Web UI, the Web UI must be set after all hardware connections and settings are done.

4.1 Quick Start Guide

Please follow following steps for quick connection and setting guidance of the NVS-40.

Step 1. Please connect a DC 12V power cord connected with an AC-DC adapter from the NVS-40 DC 12V connector to the AC outlet.
Step 2. Please turn on the power switch of the NVS-40.
Step 3. Please connect four HDMI video input sources or one SDI and three HDMI video input signals from the external connected block cameras to the HDMI and SDI video input connectors on the rear panel of the NVS-40.
Step 4. Please connect the public network to the WAN port of the router via an RJ-45 Ethernet cable.
Step 5. Please connect another RJ-45 Ethernet cable from the LAN port on the rear panel of the NVS-40 to the router.
Step 6. Please connect an RJ-45 Ethernet cable from the LAN port for the router to your PC/Laptop.
Step 7. Please set your PC/laptop in DHCP mode.
Step 8. Please download Datavideo IP Finder utility software "NVS-2X_IPFinder" on the Datavideo official website www.datavideo.com or by scanning the QR code.
Step 9. Please unzip the zip file and Install the IP Finder utility software after downloading.

🔍 NVS-2X_IPFinder_20171002_v116	2017/10/2 下午 0...	應用程式	2,398 KB
📦 NVS-2X_IPFinder_20171002_v116	2017/12/19 下午 ...	WinRAR archive	658 KB

Step 10. Open the IP Finder utility software and then the connected NVS-40 IP address will be shown automatically. If the IP address does not show automatically, users can click the **Scan** button to find the IP address of all connected NVS-40 devices.
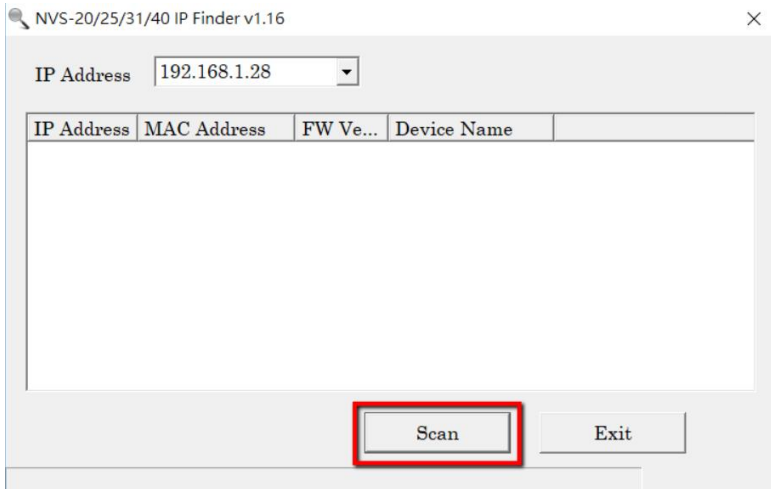
Step. 11. After the connected NVS-40 IP address is shown, please enter the IP address into the address bar of the web browser.
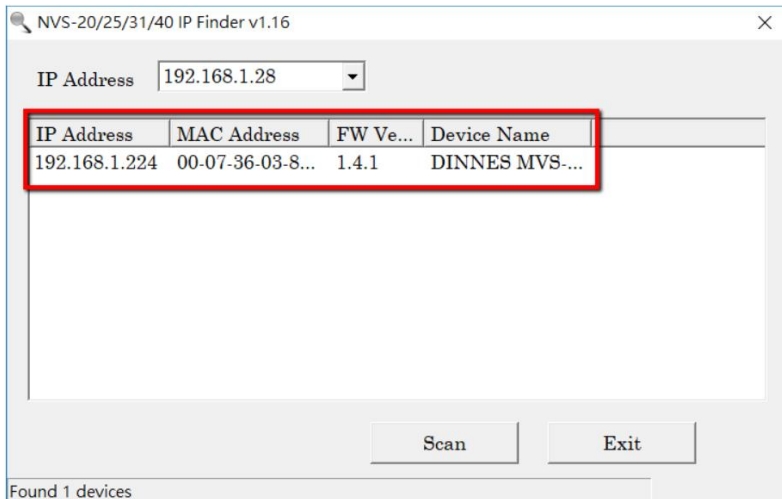
Step. 12. After connecting to the NVS-40 Web UI, there is a login interface that will be shown as following diagram for users to enter the default "Account" and "Password" when logging in NVS-40 Web UI for the first time. After the default Account and Password are entered, please press the "Sign in" button for entering into the NVS-40 Web UI. The default Account and Password are shown as following.
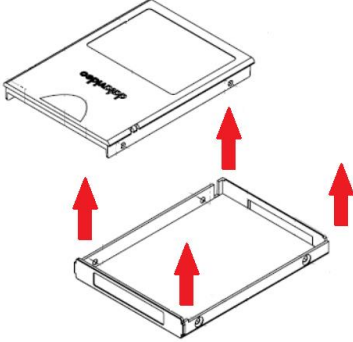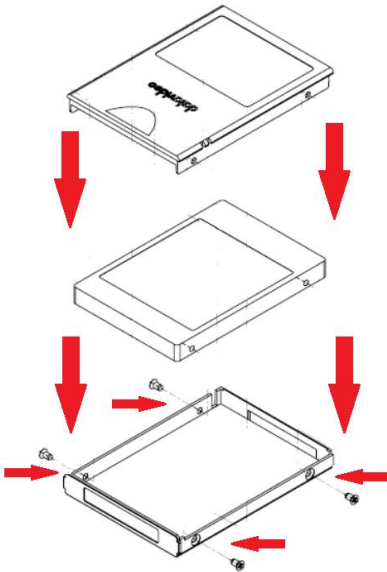Account: admin
Password: 000000
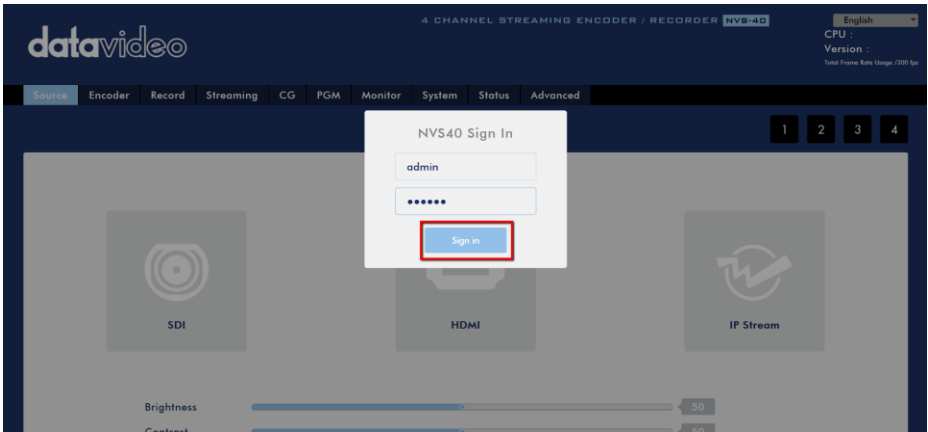
Step 13. The NVS-40 Web Control UI will be shown and then it is ready for you to control and set the NVS-40 through the Web Control UI.
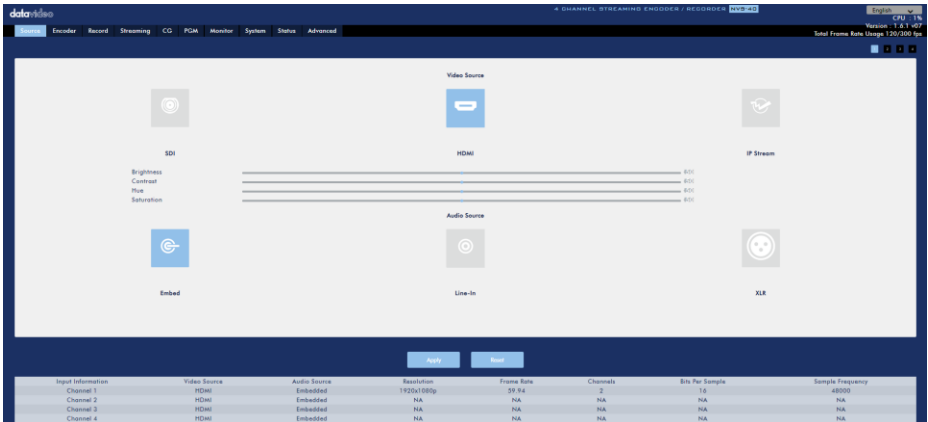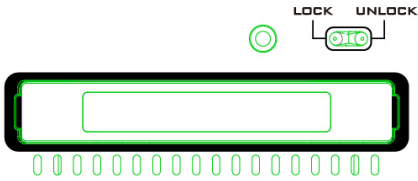
Note: The 2.5" SSD/HDD must be installed in the enclosure and inserted into the HDD tray on the front panel of the NVS-40 to start recording.

4.2 How to Install 2.5" SSD/Removable HDD

How to Assemble 2.5" SSD/HDD in Removable Enclosure.

	1. Remove the top cover of the SSD/HDD enclosure.
	2. Place the SSD/HDD into the enclosure, cover the top cover back and then screw four screws for both sides as shown as the diagram.

	3. After the SSD/HDD is placed back into the enclosure and the four screws are screwed, the SSD/HDD enclosure will be shown as the diagram.
	4. Finally, please insert the SSD/HDD enclosure into the HDD tray on the left side of the NVS-40 and then slide the LOCK/UNLOCK switch to the LOCK side as shown as the diagram. After the SSD/HDD enclosure is inserted and locked, the LED indicator will be lit.

Chapter 5   NVS-40 Web Control User Interface

After connecting the NVS-40 to the public network by following the steps of the quick start guide in the previous chapter, users can control the NVS-40 by the Web Control User Interface now. Please refer to following chapters for details of the setting and control of the NVS-40 Web Control User Interface.
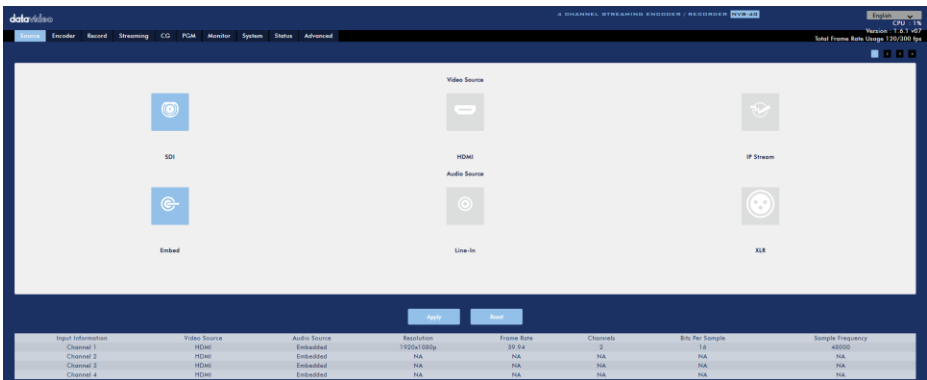
5.1 Main Control Interface

After the IP address of the NVS-40 is detected by the IP Finder utility software, users can enter the detected IP address into the address bar of the web browser, and then the NVS-40 Web Control User Interface will be shown as follows. In this example, the detected IP address is "192.168.1.244".

The main options of the NVS-40 Web UI include **Source**, **Encoder**, **Record**, **Streaming**, **CG**, **PGM**, **Monitor**, **System**, **Status** and **Advance**. All of those options will be shown on the toolbar menu.
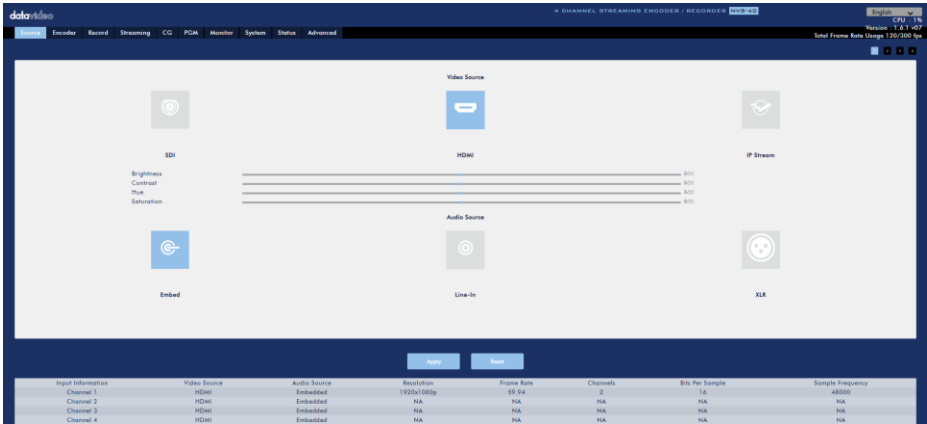
5.2 Source

The tag1, 2, 3 and 4 represent the video and audio input sources for channel 1 to channel 4. Due to that the video input source for the channel 1 can be SDI, HDMI or IP Stream, users can see the SDI and HDMI tags for the channel 1 which are shown as following diagram. Users can press the "HDMI" tag from the "Source" option on the toolbar menu to adjust the brightness, contrast, hue and saturation values by the sliders. After the adjustment is finished, users can press the "Apply" button to apply and save the settings. If users want to restore the related values back to the factory default values, please press the "Reset" button. The Embedded, Line-in and XLR audio input sources will be shown below the sliders. The video and audio tags with colors represent current input situation.

If the Input Source is SDI

If the Input Source is HDMI

If the Input Source is IP Stream

The IP Stream function allows users to use the IP Stream to be the input source and the NVS-40 can acquire the streaming video remotely.

Please follow following steps for using the IP Stream to be the input source of the NVS-40.

Step 1. Please copy the streaming address from the streaming source.
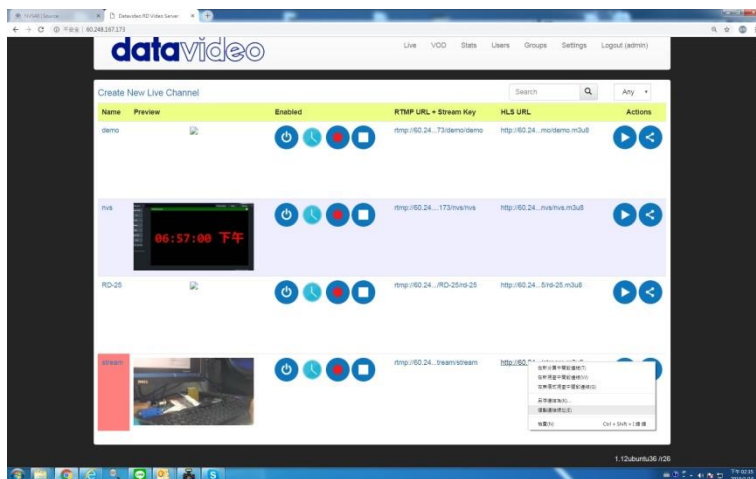
Step 2. Please click "IP Stream" from the web UI of the NVS-40 and then please paste the copied streaming address to the "Source URL" column in the IP Stream interface. After that, please press the "Apply" button. Note: If there is no special need, please set this "Source URL" column as UDP.
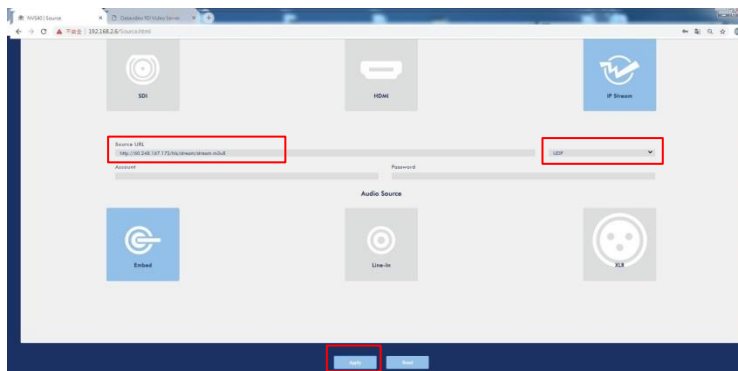
The input source related information will be shown on the bottom of the "Source" page. If the streaming video is decoded by the NVS-40 correctly, the word "IP Stream" and resolution will be shown.

Step 3. At this time, the NVS-40 can acquire the streaming video remotely.

The interfaces for video and audio input sources for Channel 2 to Channel 4 are shown as following diagram.

For the input source, if "Line-in" or "XLR" is selected, there is a slider for users to adjust the volume. However, this interface also allow users to select the audio source to be "SMPTE", "EBU" or "Manual". After the setting is finished, please press the "Apply" button to apply the setting.

All of the input sources related information will be shown on the bottom of the **Source** page which is shown as following diagram.

Input Information	Video Source	Audio Source	Resolution	Frame Rate	Channels	Bits Per Sample	Sample Frequency
Channel 1	HDMI	Embedded	NA	NA	NA	NA	NA
Channel 2	HDMI	Embedded	NA	NA	NA	NA	NA
Channel 3	HDMI	Embedded	NA	NA	NA	NA	NA
Channel 4	HDMI	Embedded	NA	NA	NA	NA	NA

5.3 Encoder

Users can see the Encoder control page by pressing the Encoder option on the menu bar. There are five tags including tag1, tag 2, tag 3, tag4 and PGM which are shown in the "Encoder" control page. Each tag allows users to set parameters in two Encoders including Main Encoder and Sub Encoder. Users can set 8 parameters including Resolution, Frame Rate, Profile, Level, Entropy, GOP, Video Bitrate(bps) and Audio Bitrate(bps) for the Main Encoder and Sub Encoder separately. The Channel 1, Channel 2, Channel 3, Channel 4 and PGM output signals can apply different Main Encoder and Sub Encoder settings, which means that there are 10 parameters that can be set by users from the Encoder page. After the adjustment is finished, users can press the "Apply" button to apply and save those settings. If the input source is the SD signal, the aspect ratio option is added for the Encoder option. If the input source is not the SD signal, the aspect ratio option will not be shown.

Note: Please pay attention that the total frame rate setting for the Record+Stream must be within 300 FPS. The following table provides the example for the total frame rate setting.
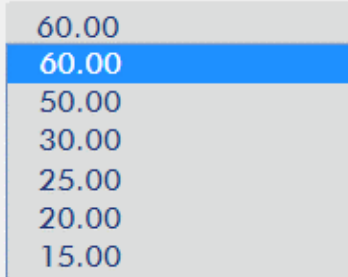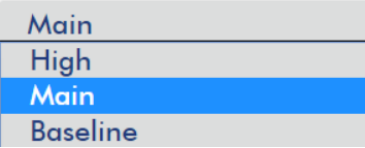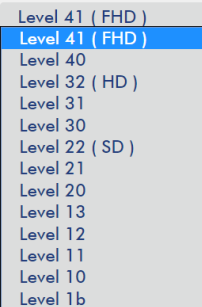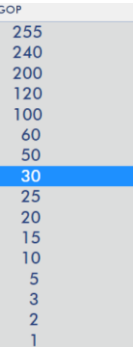
Record		Streaming	
Channel	Frame Rate	Channel	Frame Rate
1	Main Encoder: 60FPS	1	Main Encoder: 60FPS
	Sub Encoder: 30FPS		Sub Encoder: 30FPS
2	Main Encoder: Disable	2	Main Encoder: Disable
	Sub Encoder: Disable		Sub Encoder: Disable
3	Main Encoder: Disable	3	Main Encoder: Disable
	Sub Encoder: Disable		Sub Encoder: Disable
4	Main Encoder: Disable	4	Main Encoder: Disable
	Sub Encoder: Disable		Sub Encoder: Disable

PGM	Main Encoder： 30FPS	PGM	Main Encoder: 30FPS
	Sub Encoder： 15FPS		Sub Encoder： 15FPS
Total FPS=60+30+30+15+60+30+30+15=270<300			
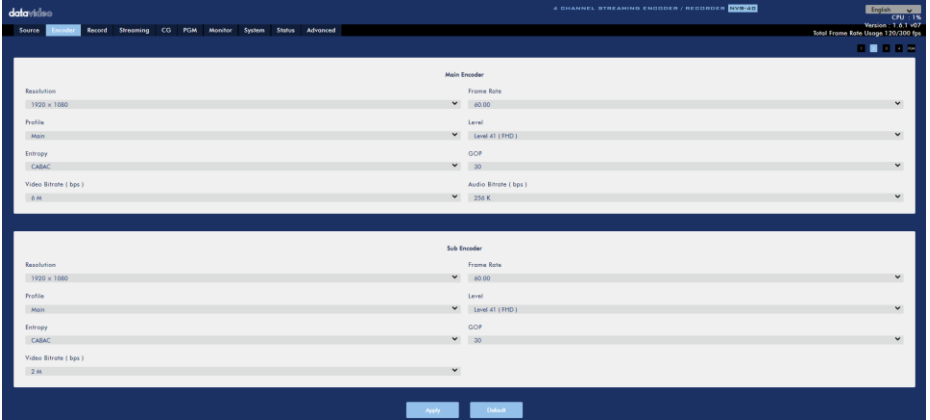
For the introduction about each drop-down menu in the Encoder page, please see following table.

	Resolution The Resolution drop-down menu allows users to select different Encoding resolutions.

Frame Rate 60.00 **60.00** 50.00 30.00 25.00 20.00 15.00	Frame Rate The Frame Rate drop-down menu allows users to select different Frame Rates. **Note:** Please pay attention that the total frame rate setting for the Record+Stream must be within 300 FPS.
Profile Main High **Main** Baseline	Profile Users can select three Profile settings including High, Main and Baseline.
Level Level 41 (FHD) **Level 41 (FHD)** Level 40 Level 32 (HD) Level 31 Level 30 Level 22 (SD) Level 21 Level 20 Level 13 Level 12 Level 11 Level 10 Level 1b	Level Users can select different Encoding levels from the drop-down menu which is shown as the diagram.
GOP 255 240 200 120 100 60 50 **30** 25 20 15 10 5 3 2 1	GOP Users can select different GOP from this drop-down menu.

Video Bitrate (bps) 32 M 24 M 16 M 12 M 8 M **6 M** 4 M 2 M 1 M 512 K 256 K	Video Bitrate (bps) Users can select different Video Bitrate settings from this drop-down menu.
Audio Bitrate (bps) 256 K 384 K **256 K** 128 K 64 K 32 K	Audio Bitrate (bps) Users can select different Audio Bitrate Settings from this drop-down menu.
Entropy CABAC CAVLC **CABAC**	Entropy Users can select different Entropy algorithm settings including CAVLC and CABAC from the drop-down menu.

5.3.1 Setting Steps and Important Notices for Encoder Option Setting (Take Youtube as an Example)

Please follow following steps and important notices for setting related parameters of the Encoder option for the NVS-40.

Step 1. Users need to go to the streaming platform/streaming media server to confirm their recommended Encoder settings. After that, please set a closest value for your NVS-40.

Note: For the live-streaming, the quality of the video is the most important. So, please make sure to set suitable resolution according to your network connection speed to assure that the streaming video can be played smoothly. It is recommended to test the data upload bitrates before starting the live-streaming. If users use "Stream Now" option, it is no need for you to set your desired resolution, Framerate and Video bitrate due to that those settings will be detected automatically by the "Stream Now" function. If you start your live-streaming by the "Events" option, what you need to do is to select one streaming token with variable resolutions to have the advantage of the "Stream Now" option. Moreover, users can select their desired resolution and framerate settings manually and then Youtube will encode your streaming video automatically to produce multiple output formats to fit different network speed and device demands for the audience of the live-streaming. Before the live-streaming is started, please make sure that the test is done. The content of the test should include the content that is similar to the live-streaming content. During the live-streaming period, users can monitor the streaming situation and check the error messages.

Step 2. Set the Profile Option. Due to that there is little difference for different Profile settings. So, it is recommend to fix the Profile option at "High".

• For the HD or 720P resolution, please set the Profile at "High".
• For the 720 resolution, please set the Profile at "Main".
• For the resolution which is below the 720, please set the Profile at "Baseline".

Step 3. Please set the Entropy option at CABAC (The recommended value of the Yoututbe platform).
Step 4. Set the Video Bitrate (bps). Please follow following Youtube platform recommended values for setting the Video Bitrate.

➢ 1080P： 3,000 - 6,000 Kbps

➢ 720p @60fps： 2,250 - 6,000 Kbps

➢ 720p： 1,500 - 4,000 Kbps

➢ 480p： 500 - 2,000 Kbps

➢ 240p： 300 - 700 Kbps

Step 5. Set the Audio Bitrate (bps). The recommended Audio Bitrate is 128K.

Step 6. Set the GOP. The recommended GOP values for the Youtube platform are shown as following table.

Frequency for playing the I Frame (Key Frame): The recommended setting is 2 seconds and this value must not exceed 4 seconds.

The setting values for the 2 seconds I Frame Interval are shown as following table.

Resolution and Frame Rate	GOP Value
1080P@50	GOP=100
1080i@50	GOP=50
1080P@60	GOP=120
1080i@60	GOP=60
1080P@25	GOP=50
1080P@30	GOP=60

5.3.2 Important Notices for Setting the Encoder (Take Facebook Platform as an Example)

If users want to stream at the Facebook Platform, please follow following important Notices for streaming by the Facebook Platform.

The recommended upper limit for the Video Bitrate (bps) setting is 4000kbps (4mbps).

The recommended upper limit for setting the Resolution option is 720p (1080 x 720). The upper limit for setting the Frame Rate is 30fps.

During the streaming period, the I-Frame must be sent in every 2 seconds. (Key Frame).

The title must be within 255 characters or the streaming will be failed.

The Facebook platform supports for H.264 encoded video and AAC encoded audio only.

If the resolution for the video source is 1280*720P@30, it is fine to set the resolution at "Same as Input".

If the source resolution is 1280*720P@60/50, the setting for frame rate must be changed to 30 or 25.

If the source resolution is 1920 x 1080, please set the video bitrate (bps) as 1280*720 from the drop-down menu due to that the upper limit for the resolution is 1280*720.

Because the upper limit for the recommended video bitrate for the Facebook platform is 4000kbps, so, it is a must for users to set the video bitrate to less than 4mbps.

During the streaming, the Key Frame must be sent for every two seconds which is the same as Youtube platform's demand.

The setting values for the 2 seconds I Frame Interval are shown as following table.

Resolution and Frame Rate	GOP Value
1080P@50	GOP=100
1080i@50	GOP=50
1080P@60	GOP=120
1080i@60	GOP=60
1080P@25	GOP=50
1080P@30	GOP=60

5.4 Record

After pressing the Record option from the menu bar of the NVS-40 Web UI, users can see the Record option control page. There are five tags including tag 1, tag 2, tag 3, tag 4 and PGM. Each tag includes two Record settings including Main Record and Sub Record. So, it means that users can record up to 10 video sources with different codings and video formats. After the setting is completed, users can press the "Start Record" or "Stop Record" button to start or stop the video recording. When the Advance Mode is activated and the REC LED indicator is flickering in red, it means that the recording function can not be used.

For the introduction for each drop-down menu of the Record page, please see following table.

|	
Encoder Source Main Encoder **Main Encoder** Sub Encoder Disable	Encoder Source Users can select Main Encoder, Sub Encoder or Disable from the Encoder Source drop-down menu.
File Name CH01_MAIN_%Y%M%D_%h%m%s_%i	File Name Users can enter their desired File Name into the blank.
Type MP4 **MP4** TS MOV	File Type Users can save the recorded file in different file formats including MP4, TS and MOV by this drop-down menu.
Duration (min) 120 Unlimitation **120** 60 30 5 1	Duration (min.) Users can determine the duration of each recorded file including 1 min., 5 min., 30 min., 60 min., 120 min., and Unlimitation by this drop-down menu.

5.5 Streaming

After pressing the Streaming option from the menu bar of the NVS-40 Web UI, users can see the Streaming control page. There are five tags including tag 1, tag 2, tag 3, tag4 and PGM. Each tag includes two Streaming settings including Main Streaming and Sub Streaming. So, it means that users can stream up to 10 video sources with different codings and video formats. After the streaming setting is completed, users

can press the "Apply" button to apply the setting. Moreover, users can press the "Start Stream" or "Stop Stream" button to start or stop the streaming.
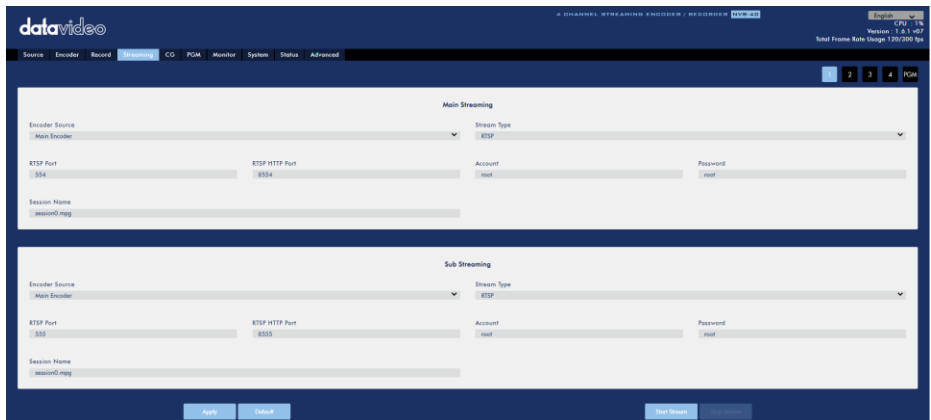
5.5.1 User Interface for Different Streaming Formats

The streaming option of the NVS-40 Web UI provides different streaming formats for users including RTMP, RTMPS, RTSP, TS and HLS. The user interfaces of different streaming formats are shown as following diagrams.
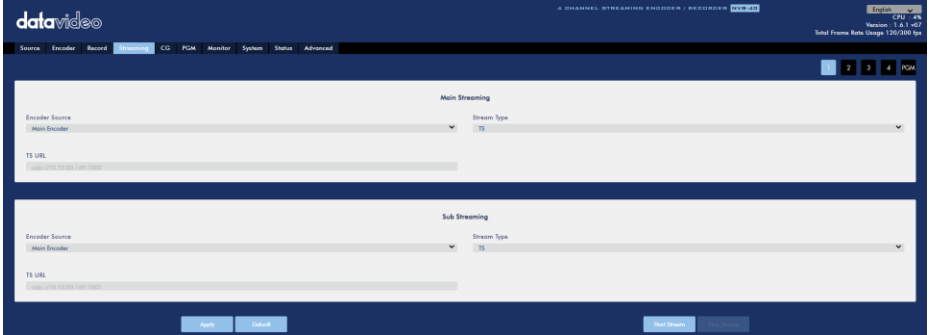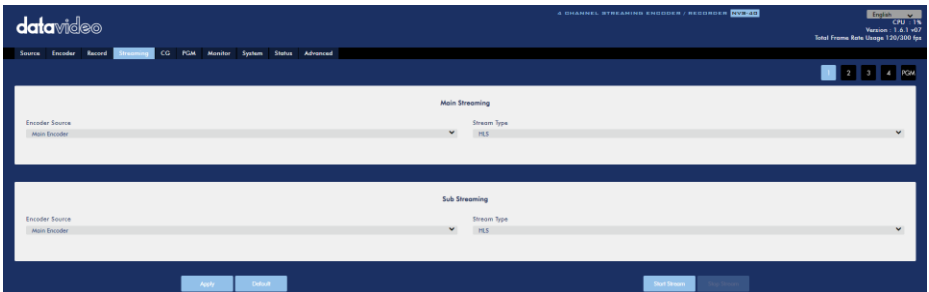
RTMP/RTMPS
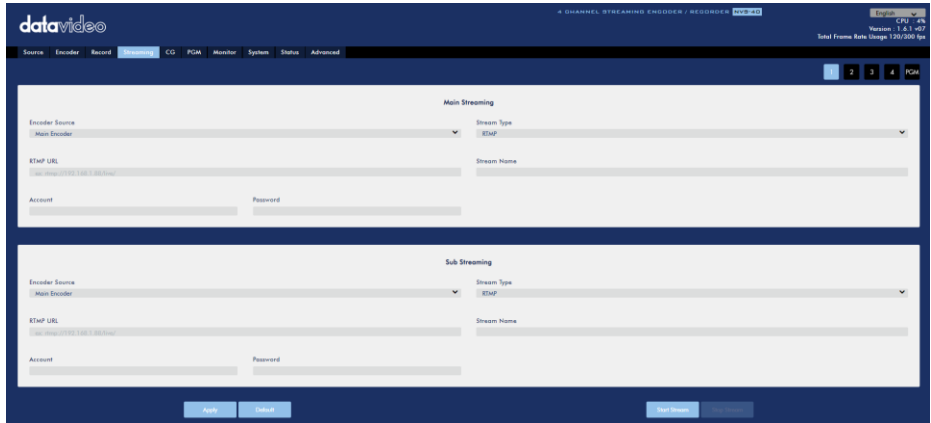
RTSP

TS

HLS

For the introduction for each drop-down menu of the Streaming page, please see following table.

	Encoder Source Users can select Main Encoder, Sub Encoder and Disable from the Encoder Source drop-down menu.

	Stream Type Users can select stream protocols including RTSP, RTMP, TS and HLS from this drop-down menu. **Note:** If users want to use the RTMPS streaming protocol, please select the RTMP Stream Type.
	RTMP URL Before starting the RTMP streaming, users need to obtain streaming server address and streaming token from their desired streaming platform such as Youtube or Facebook. After that, please enter the streaming server address and streaming token into the RTMP URL blank according to following format. Streaming Server Address/Streaming Token Finally, please press Start Stream or Stop Stream button to start or stop the live-streaming. Note: If users want to use the RTMPS streaming protocol, please enter the

	RTMPS address into this RTMP URL column.
Account **Password** root root	Account and Password These two blanks allow users to enter the Account and Password of the RTSP streaming. The default account and password are shown as following. Account: root Password: root
RTSP port **RTSP HTTP Port** 554 8554	RTSP Port and RTSP HTTP Port These two blanks will show RTSP port No. and RTSP Http port No. The range for default RTSP port No. is from 554~562. The range for default RTSP http port No. is 8555~8563.
Session Name session0.mpg	Session Name The default RTSP Session Name is "session0.mpg".
TS URL udp://10.10.80.169:1000	TS URL This column allows users to enter the TS URL.

5.5.2 Streaming-RTSP (Use RTSP Protocol)

The NVS-40 allows users to stream by using the RTMP, RTMPS, RTSP, TS and HLS streaming protocols. For the steps for streaming by those protocols, please see following paragraphs.

1. Please use an RJ-45 Ethernet cable to connect one end to the public network and then connect another end to the WAN port of a router.

2. Please use another RJ-45 Ethernet cable to connect one end to the LAN port on the rear panel of the NVS-40 and then connect another end to one of the LAN port of the router.

3. Please use another RJ-45 Ethernet cable to connect one end to the LAN port of the PC/Laptop and then connect another end to the LAN port of a router.

4. Please open Datavideo IP Finder software and then please press the Scan button to find the IP address of the NVS-40. (Please refer to Chapter 4. Quick Start Guide-Connection and Setting)

5. Please enter NVS-40's IP address into the address bar of the web browser to open the web control interface of the NVS-40.

6. Please click the Streaming option from the web control interface to open the streaming control interface.

7. Please select Main Encoder or Sub Encoder from the Encoder Source drop-down menu.
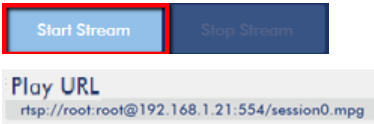
Encoder Source
Main Encoder

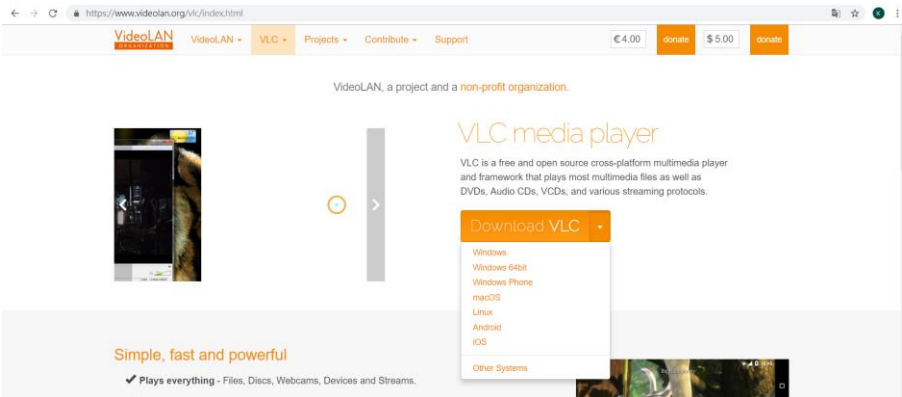8. Please select RTSP from the Stream Type drop-down menu of Main Encoder or Sub Encoder.
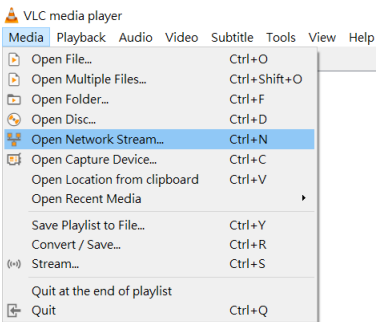
Stream Type
RTSP

9. Please press the "Start Stream" button and then the RTSP streaming address will be generated.


10. Please download the VLC media player from https://www.videolan.org and then install the software.

11. Please open the VLC and then click "**Media**" drop-down menu and then click "**Open Network Stream**".

12. Please enter the streaming address that is generated by the NVS-40 into the "Please enter a network URL" column and then please press the Play button for playing the streaming.
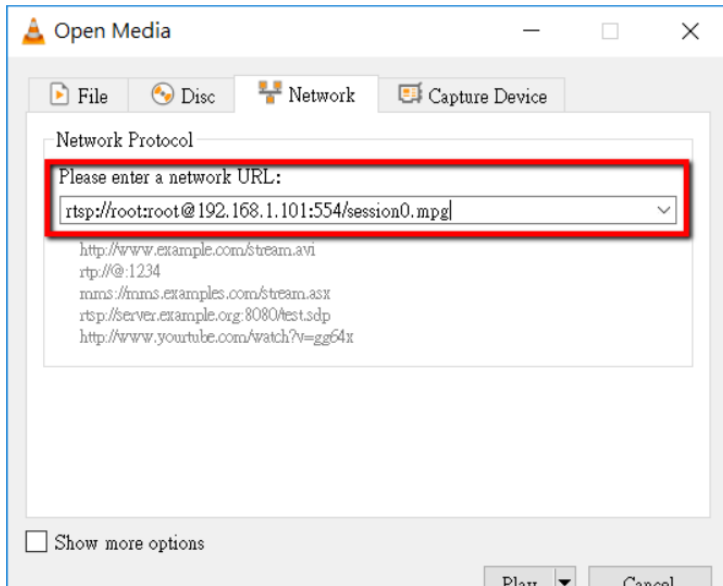
5.5.3 Streaming-TS (Use TS Protocol)

1. Please use an RJ-45 Ethernet cable to connect one end to the public network and then connect another end to the WAN port of a router.

2. Please use another RJ-45 Ethernet cable to connect one end to the LAN port on the rear panel of the NVS-40 and then connect another end to one of the LAN port of the router.

3. Please use another RJ-45 Ethernet cable to connect one end to the LAN port of the PC/Laptop and then connect another end to the LAN port of a router.

4. Please open Datavideo IP Finder software and then please press the Scan button to find the IP address of the NVS-40. (Please refer to Chapter 4. Quick Start Guide-Connection and Setting)

5. Please enter NVS-40's IP address into the address bar of the web browser to open the web control interface of the NVS-40.

6. Please click the Streaming option from the web control interface to open the streaming control interface.

7. Please select Main Encoder or Sub Encoder from the Encoder Source drop-down menu.

Encoder Source

Main Encoder

8. Please select TS from the Stream Type drop down menu of Main Stream or Sub Stream.

Stream Type

TS
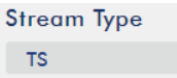
9. Please enter the IP address of your PC which is shown by the IP Finder software into the TS URL column by following format. Take 192.168.100.100 as an example, the TS streaming address will be udp://192.168.100.100:1000

NVS-20/25/31/40 IP Finder v1.16

IP Address | 192.168.100.100 |

10. Please press the "Start Stream" button and then the TS streaming address will be generated by the NVS-40.

TS URL

udp://10.10.80.169:1000
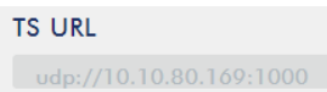
11. Please download VLC media player from https://www.videolan.org and then please install the software.
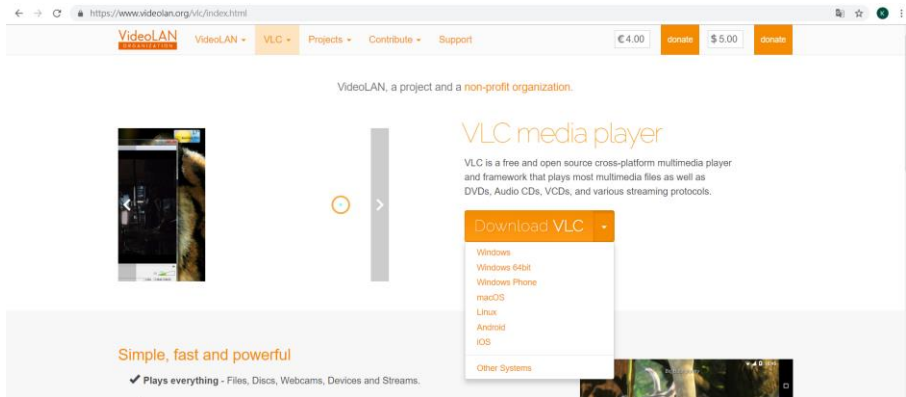
12. Please open the VLC and then click "**Media**" drop-down menu and then click "**Open Network Stream**".
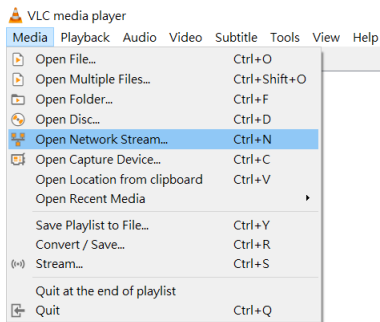
13. Please enter the streaming address that is generated by the NVS-40 into the "Please enter a network URL" column and then please press the Play button for playing the streaming. Take above address as an example, the address will be udp://192.168.100.100:1000
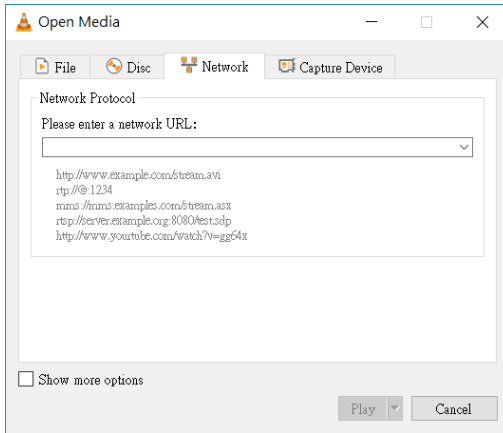

5.5.4 Streaming-RTMP (Use RTMP Protocol) (Take Youtube as an Example)
1. Please use an RJ-45 Ethernet cable to connect one end to the public network and then connect another end to the WAN port of a router.

2. Please use another RJ-45 Ethernet cable to connect one end to the LAN port on the rear panel of the NVS-40 and then connect another end to one of the LAN port of the router.

3. Please use another RJ-45 Ethernet cable to connect one end to the LAN port of the PC/Laptop and then connect another end to the LAN port of a router.

4. Please go to Youtube website https://www.youtube.com/live_dashboard and then please click the "Stream Now" option from the left column.
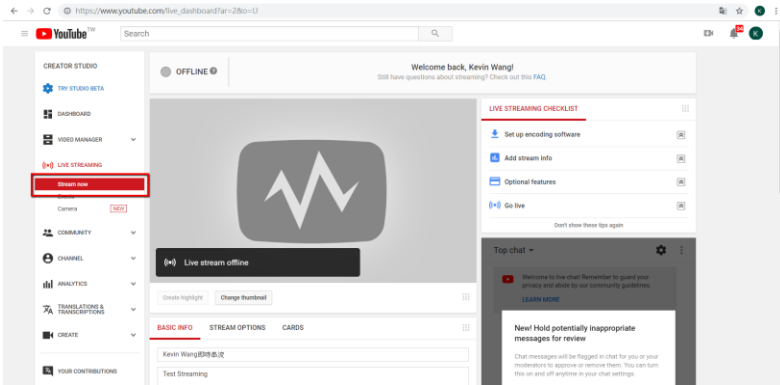
5. The Server URL and Stream Name/Key will be shown on the bottom of the Youtube page.
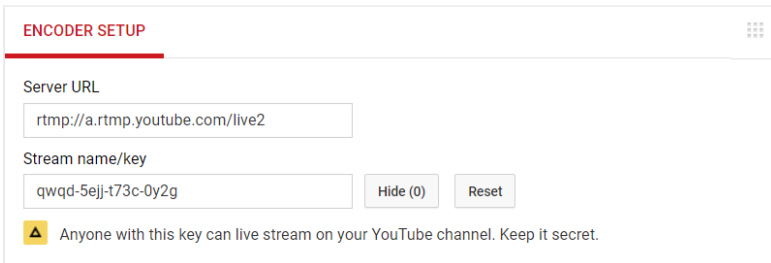
6. Please open Datavideo IP Finder software and then please press the Scan button to find the IP address of the NVS-40. (Please refer to Chapter 4. Quick Start Guide-Connection and Setting)

7. Please enter NVS-40's IP address into the address bar of the web browser to open the web control interface of the NVS-40.

8. Please click the Streaming option from the web control interface to open the streaming control interface.

9. Please select your desired Encoder Source from the Encoder Source drop-down menu and then please select RTMP from the Stream Type drop-down menu.

Encoder Source
Main Encoder
Stream Type
RTMP

10. Please copy the Server URL and Stream Name/Key that are provided by the Youtube Live website and then paste them into the RTMP URL column in the Streaming control page. The format for entering the Server URL and Stream Name/Key is shown as following.
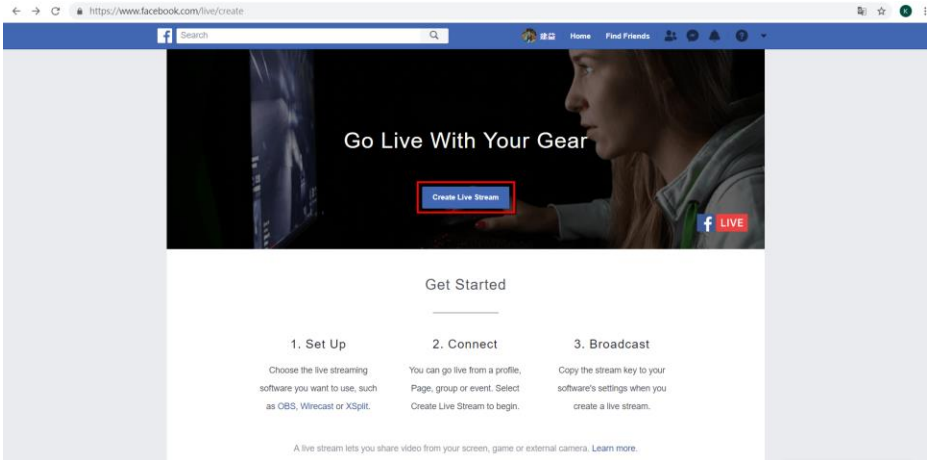
Server URL/Stream Name

RTMP URL
rtmp://a.rtmp.youtube.com/live2/tyye-08ym-a1j9-5uhy

11. Please press the "Start Stream" button and then the video can be streamed by the Youtube platform.

5.5.5 Streaming-RTMP (Use RTMP Protocol) (Take Facebook as an Example)
1. Please use an RJ-45 Ethernet cable to connect one end to the public network and then connect another end to the WAN port of a router.

2. Please use another RJ-45 Ethernet cable to connect one end to the LAN port on the rear panel of the NVS-40 and then connect another end to one of the LAN port of the router.

3. Please use another RJ-45 Ethernet cable to connect one end to the LAN port of the PC/Laptop and then connect another end to the LAN port of a router.

4. Please go to Facebook website https://www.facebook.com/live/create , and then please click "Create Live Stream" button. **Note**: In Facebook platform, each streaming must be within 4 hours.


5. The following screen will be shown, please check "Use a persistent stream key" and then please copy "Server URL" and "Persistent Stream Key". Finally, please paste them into the "RTMP URL" column and "Stream Name" column respectively in the Streaming option of the NVS-40 web-based control interface.
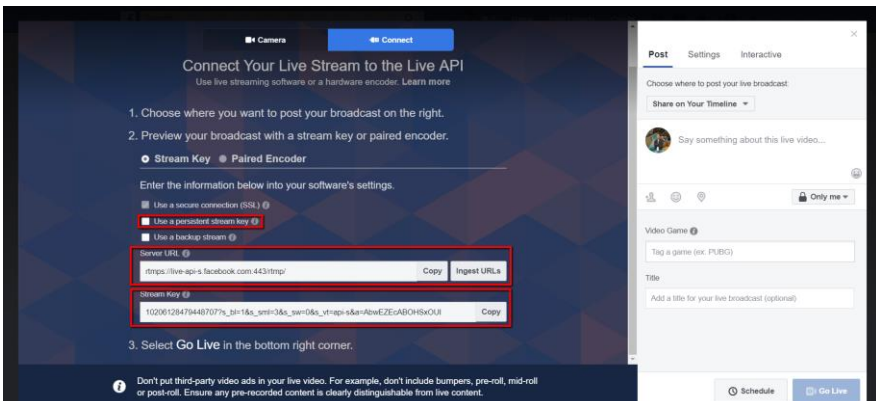
6. After the Server URL and the Persistent Stream Key are pasted into the column, please press the "Start Stream" button.
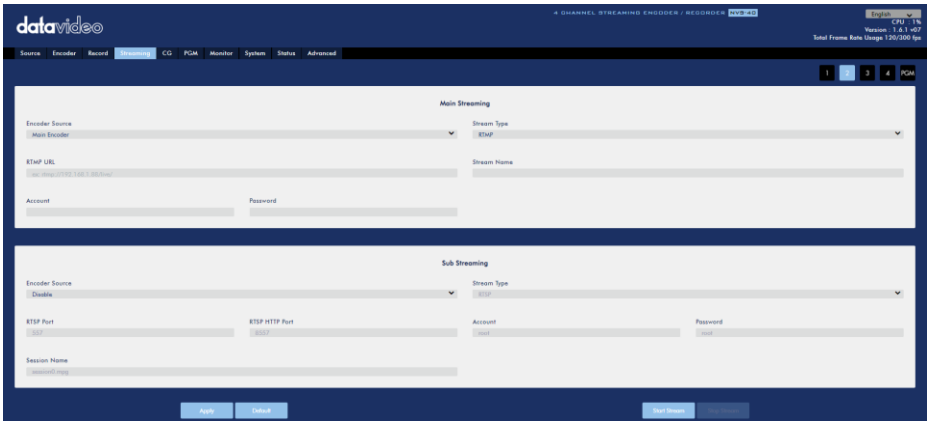

7. The preview screen will be shown on the Facebook live-stream page. Please choose the section that you want to post your live broadcast and the audience who can see the live broadcast. Finally, please press the "Go Live" button to start streaming the video to the Facebook page.
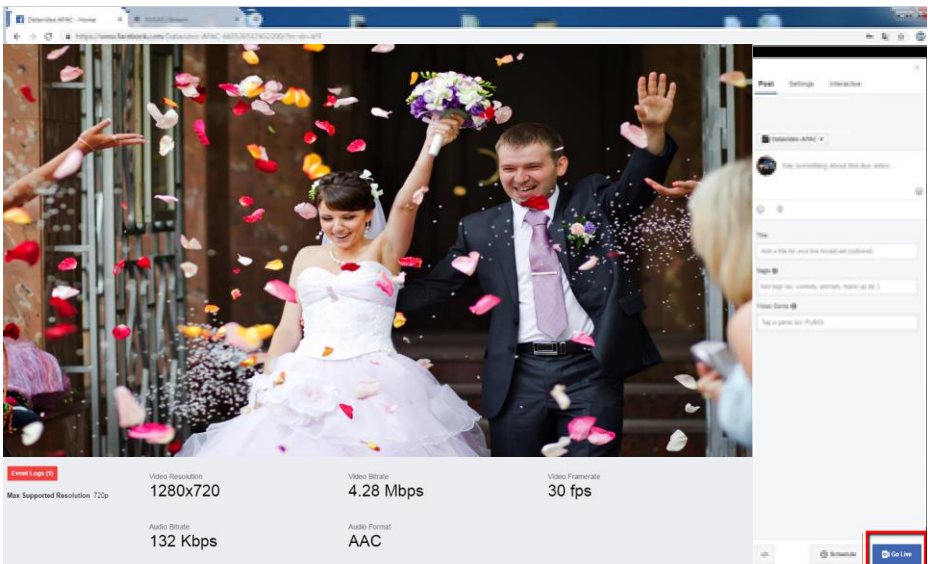
5.5.6 Streaming –HLS (Use HLS Protocol)

1. Please select your desired Encoder Source from the Streaming page and then choose HLS from the Stream Type drop-down menu. After that, please press the "Start Stream" button.
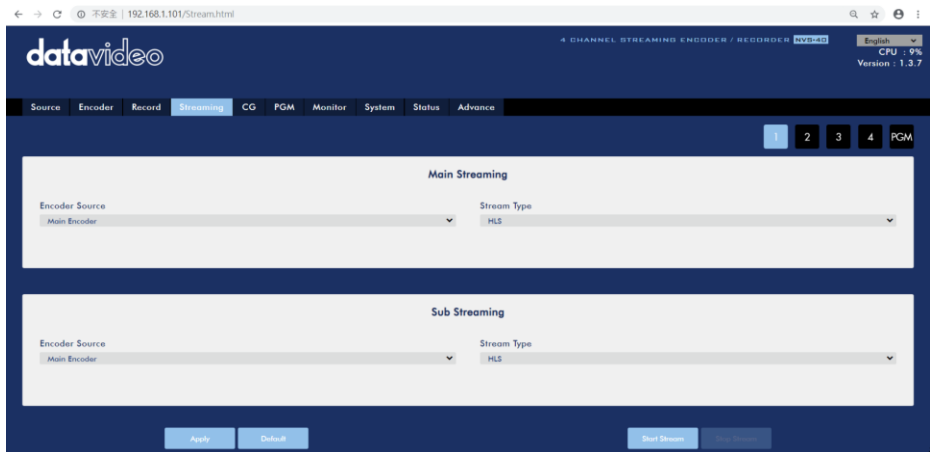
2. NVS-40 will generate a stream address with .m3u8 file extension.

Play URL

http://192.168.1.101/hls/2/session0.m3u8

3. Please play the .m3u8 stream address by following ways.

- For iPhone, iPad and MacBook：Please open the .m3u8 steam address by Safari web browser.
- For Windows 10: Please use Microsoft Edge web browser to open the .m3u8 stream address.
- For Non-Windows 10:

1. Please download VLC media player from https://www.videolan.org and then please install the software.
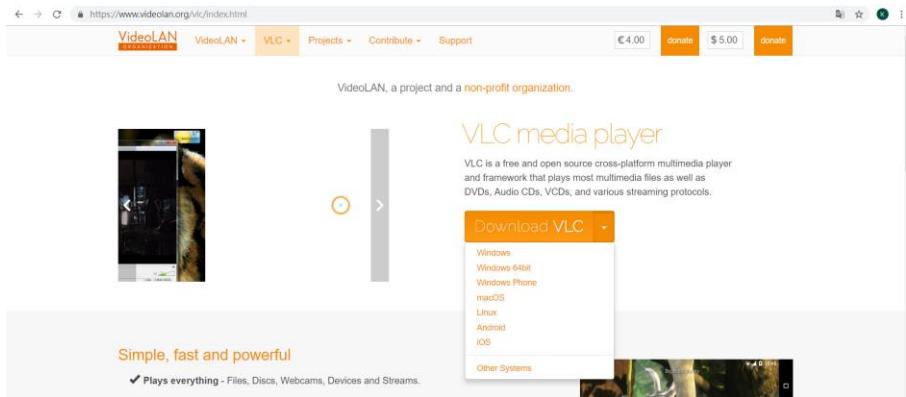
2. Please open the VLC and then click "**Media**" drop-down menu and then click "**Open Network Stream**".
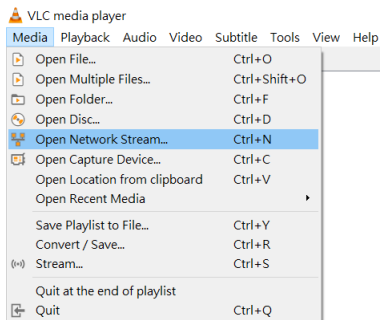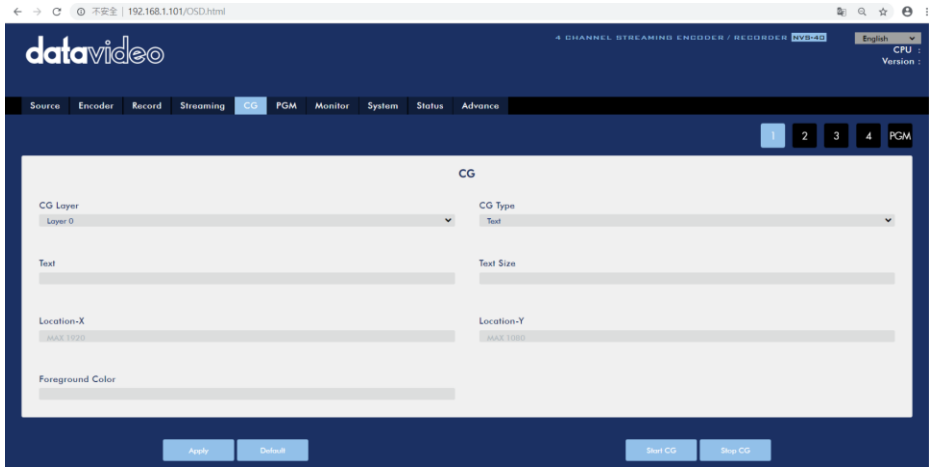
3. Please enter the streaming address that is generated by the NVS-40 into the "Please enter a network URL" column and then please press the Play button for playing the streaming.
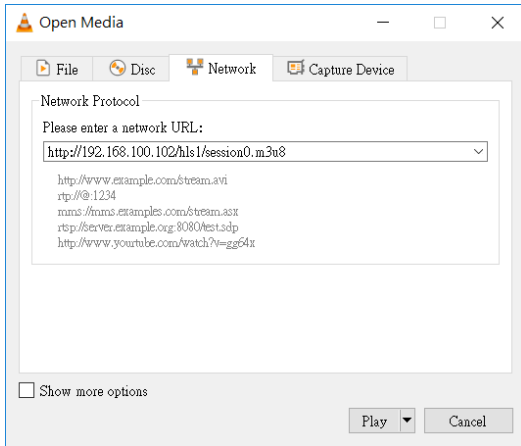
5.6 CG

After pressing the CG option on the web control interface, users can see the CG option control page. There are five tags including tag 1, tag 2, tag 3, tag 4 and PGM for users to set different CG parameters for Channel 1, Channel 2, Channel 3, Channel 4 and PGM. After all CG parameters are set, users can press "Start CG" and "Stop CG" button to overlay desired characters or pictures to specific input source or PGM. Moreover, it allows users to remove the CG from specific input source or PGM. Please see following diagram for the main interface of the CG option.

The parameters for CG option drop-down menus are shown as following table.

	CG Layer Users can select different CG layers to determine their desired layer to place characters or pictures
	CG Type Users can select character or picture to be the CG source from this drop-down menu.

Text [ ]	Text If users select text to be the CG source, users can enter their desired texts into this column.
Location-X Location-Y 50 50	Location-X/Location-Y Users can determine the X-axis and Y-axis of the CG source. (Text/Picture)
Width 0 Height 0	Width and Height Users can enter different values to determine the Width and Height of the CG source.
Background Color R: 222. G: 193. B: 222 R 0 ⁞ H 300 ⁞ G 0 ⁞ S 0 ⁞ B 0 ⁞ B 0 ⁞ # 000000	Foreground Color Please enter different parameters in these blanks to determine different foreground color for the CG source. Users can select their desired color from the color spectrum on the left side. After the desired color is selected, please press the color wheel button on the bottom right side to confirm the color selection.

Text Size 36	Text Size Please enter different figure to change the text size.
File Path Upload Image Browse	File Path If users select a picture to be the CG source, please press the Browse button to select your desired picture from the hard disk of your PC or laptop.

5.6.1 How the Location X & Location Y values Affect CG Source
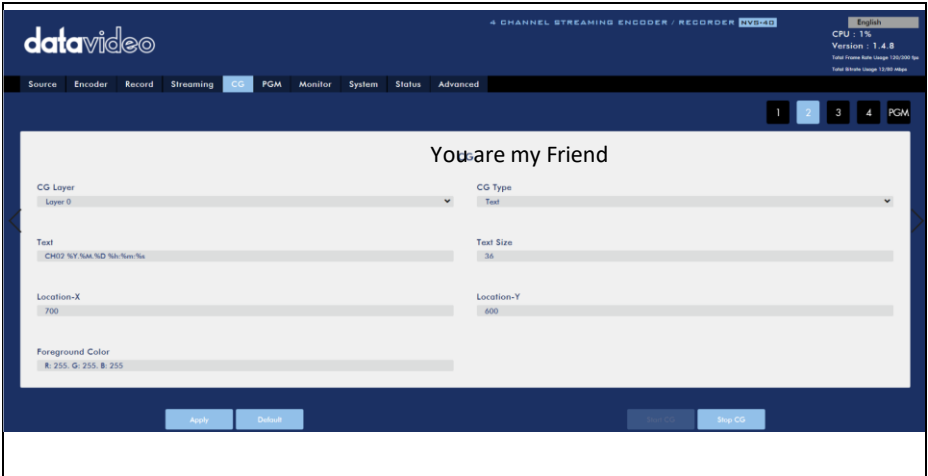**1. Text：**

Users can adjust the Location-X and Location-Y values to change the position of the inserted text on the screen.

Location-X: For Location-X, the more the value, the more the text will be moved from the left side to the right side.
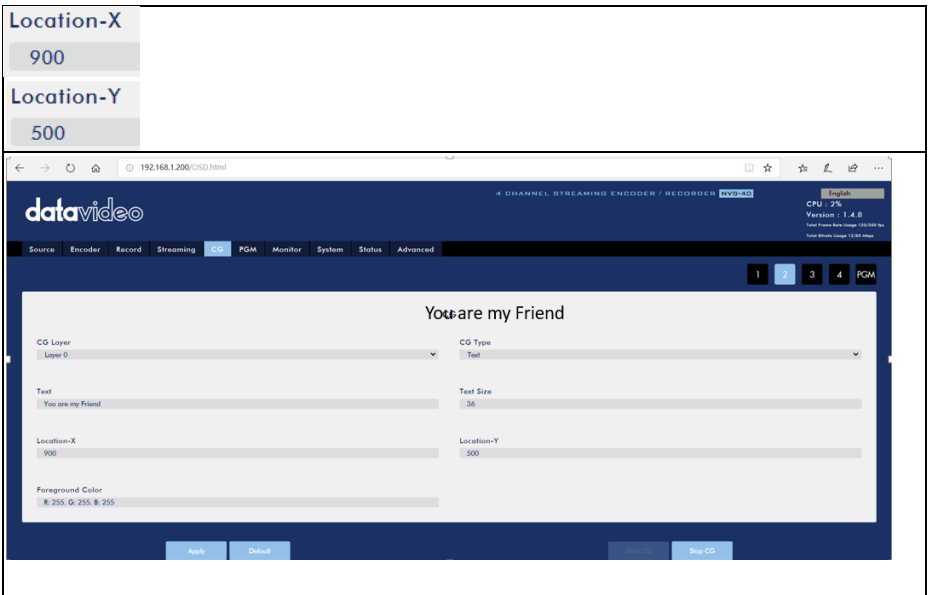
Location-Y: For Location-Y, the more the value, the more the text will be moved from the up side to the down side.

Example: Location-X=700, Location-Y=600

Location-X

700

Location-Y

600

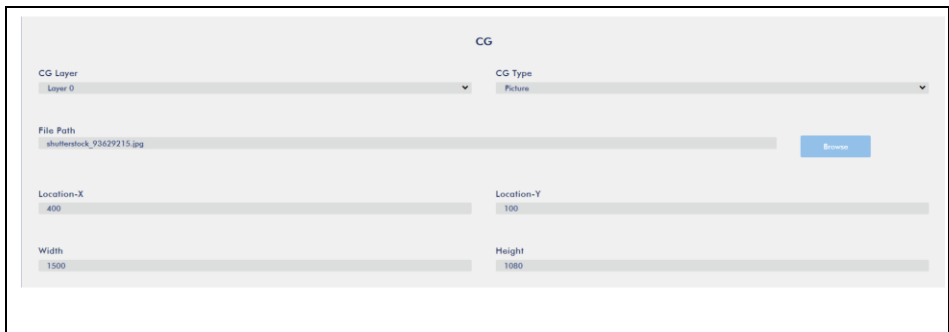Example：Location-X = 900，Location-Y = 500

2. Picture：

Users can adjust the Location-X and Location-Y value to change the position of the inserted picture on the screen.

Location-X: For the Location-X, the more the value, the more the picture will be moved from the left side to the right side.

Location-Y: For the Location-Y, the more the value, the more the picture will be moved from the up side to the down side.

Width and Height: Users can enter different value to control the width and height of the inserted picture.

Example: Location-X=400, Location-Y=100, Width=1500, Height=1080

CG Layer
Layer 0

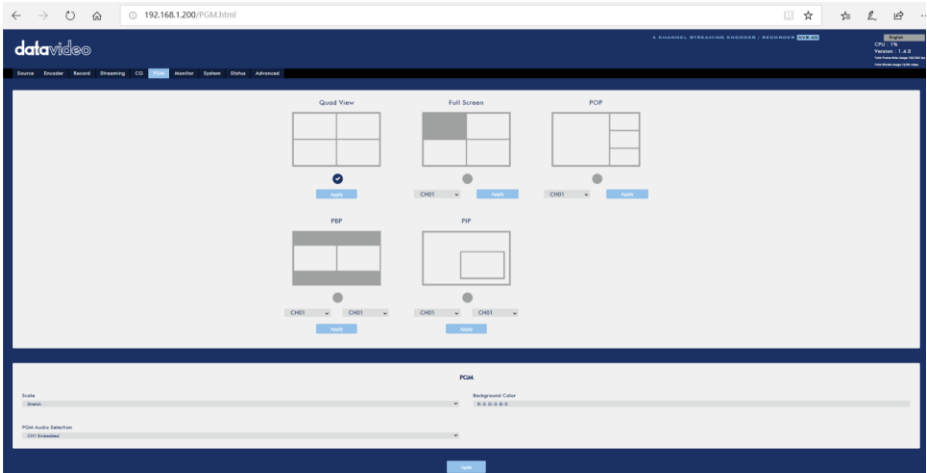File Path
shutterstock_93629215.jpg

Location-X
400

Width
1500

Apply

5.7 PGM

After pressing the PGM option on the menu bar of the web UI, users can see the control page 0f the PGM option. The PGM option provides five modes for displaying the PGM screen including Quad View, Full Screen, POP, PBP and PIP. The main interface of the PGM option is shown as following diagram.

1. Quad View: Please press the "Quad View" icon and then please press the "Apply" button for applying the setting.
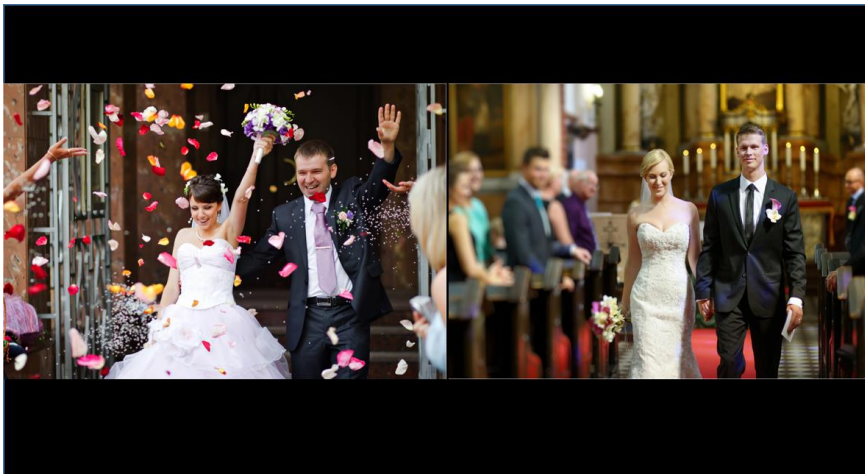

2. Full Screen: Please press the "Full Screen" icon and then please select the channel that is desired to be shown in Full Screen mode. After that, please press the "Apply" button for applying the setting.
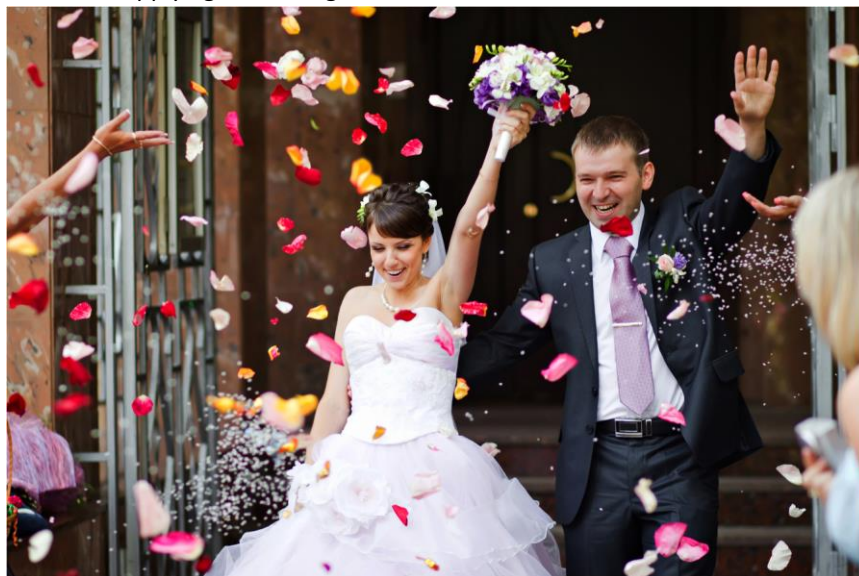
3. POP (Picture Outside Picture): Please press the POP icon and then please select the channels that are desired to be shown in POP mode. After that, please press the "Apply" button for applying the setting.

4. PBP (Picture By Picture): Please press the PBP icon and then please select the two channels that are desired to be shown in the PBP mode. After that, please press the "Apply" button for applying the setting.
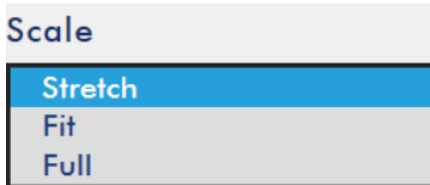
5. PIP (Picture in Picture): Please press the PIP icon and then please select the two channels that are desired to be shown in the PIP mode. After that, please press the "Apply" button for applying the setting.
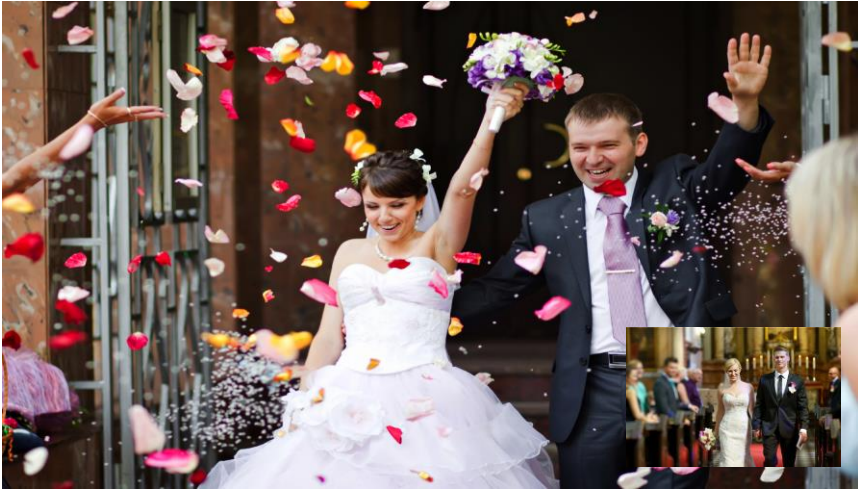
5.7.1 Scale

There is a "Scale" drop down menu including "Stretch", "Fit" and "Full" in the PGM user interface for users to apply in the POP and PBP mode.

Please see following paragraphs for the introduction of the three modes including "Stretch", "Fit" and "Full".

Stretch: If the "Stretch" is selected, the PGM screen will be stretched to up side and down side.

**Fit**: If the "Fit" is selected, the PGM screen will be shown in original scale.

Full: If the "Full" is selected, the PGM screen will be enlarged and the part that is over the screen will be cut off.

Please see following diagrams to tell the differences for those modes.

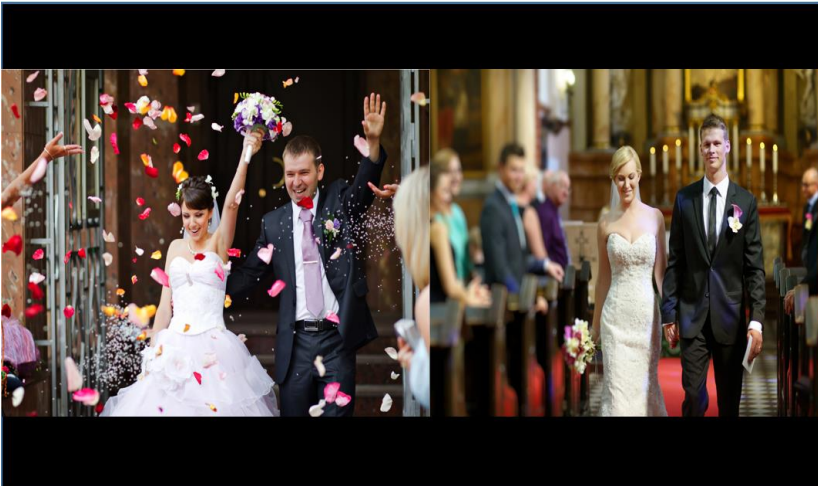1. The PGM option is set to POP mode and the Scale drop-down menu is set to "Stretch".

2. The PGM option is set to POP mode and the Scale drop-down menu is set to "Fit".
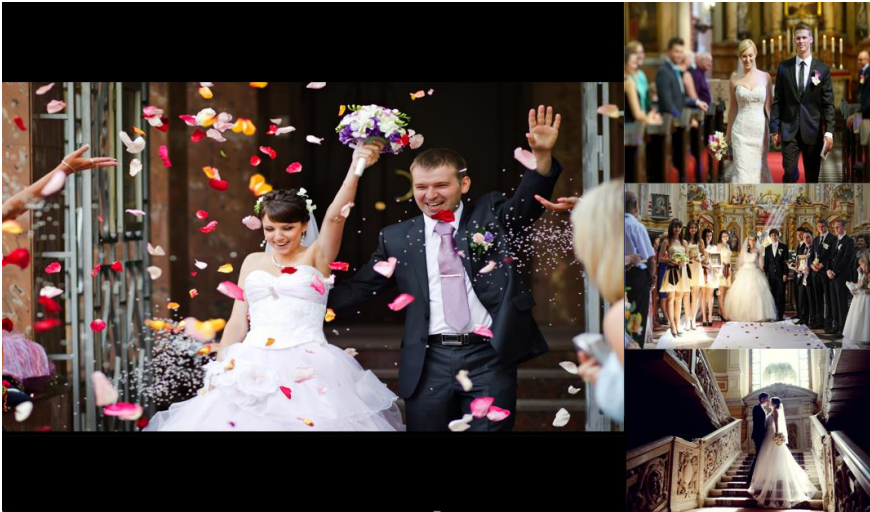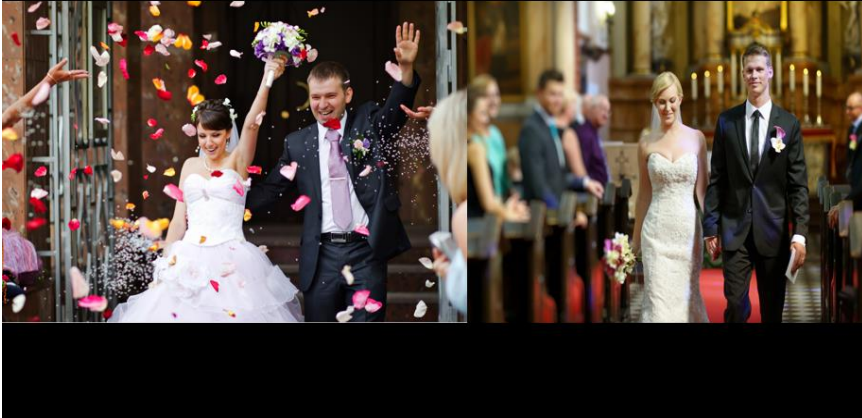
3. The PGM option is set to POP and the Scale drop down menu is set to "Full".
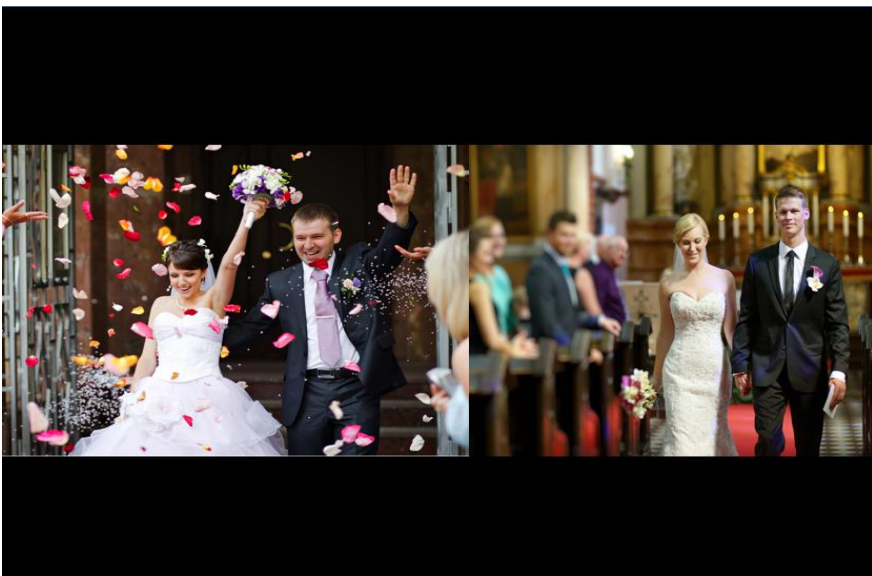

4. The PGM option is set to PBP mode and the Scale drop-down menu is set to "Stretch".

5. The PGM option is set to PBP and the Scale drop-down menu is set to "Fit".

6. The PGM option is set to PBP and the Scale drop-down menu is set to "Full".

5.7.2 PGM Background Color

The Background Color option in the PGM option allows users to select different colors when displaying in PBP mode. Please follow following steps for changing the background color of the PGM option.

Step 1. Please press the background color option and then please select your desired color by entering the RGB or HSB code to the right side of the pop-up color picker. Moreover, users can select their desired background color from the color spectrum on the left side.


Step 2. After the desired color is selected, please press the color wheel button on the bottom right side to confirm the selection.

Step 3. Please press the "Apply" button to confirm the selection.

5.7.3 PGM Audio Source Selection
The NVS-40 provides PGM audio signals including CH1 Embedded, CH2 Embedded, CH3 Embedded, CH4 Embedded, XLR and RCA for users to select from the drop-down menu.
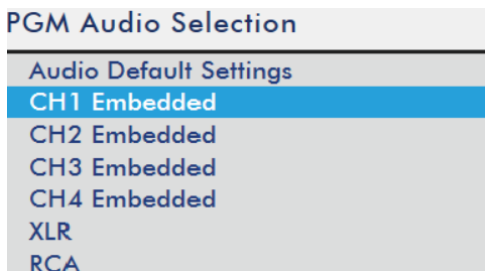
5.8 Monitor

After pressing the Monitor option on the menu bar of the web UI, users can see the control page is shown. There are four HDMI frame rate including 60FPS, 50FPS, 30FPS and 25FPS for users to select. Moreover, it allow users to adjust the output volume.
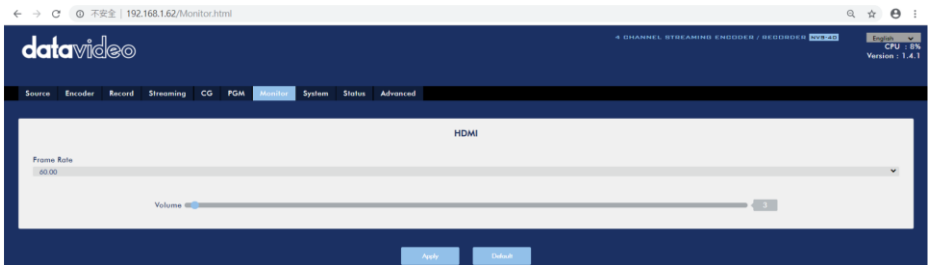
5.9 System

After pressing the System option on the menu bar of the web control interface, users can see the system control page. The system control page allows users to set five system related parameters including network setting, Time Setting, Firmware Update, Disk Format and System Control. The system control page is shown as following diagram.
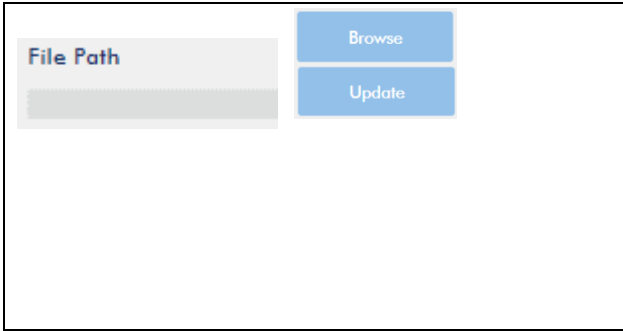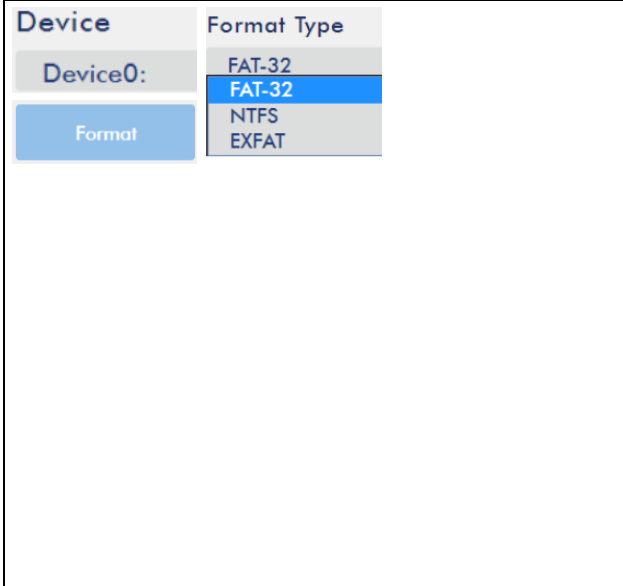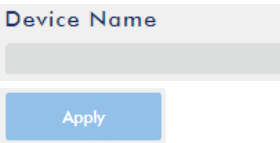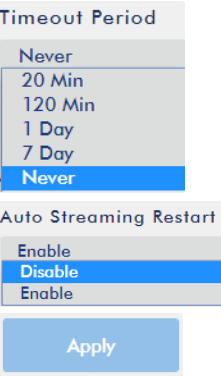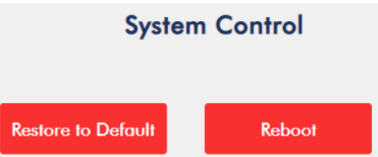
Network Setting	
DHCP Enable Enable Disable	DHCP The default Network mode for the NVS-40 is DHCP mode, if users select "Disable", they need to enter related information manually by themselves.
Static IP 192.168.1.200 **Subnet Mask** 255.255.255.1 **Default Gateway** 192.168.1.1 **Primary DNS** 192.168.1.100 **Secondary DNS** 0.0.0.0	Static IP/Subnet Mask/Default Gateway/Primary DNS/Secondary DNS Due to that the default network mode of the NVS-40 is the DHCP mode, once the DHCP mode is set to Enable, all of the network related parameters will be set automatically. If the DHCP mode is set to Disable, users need to enter all parameters manually by themselves.
Apply Default	When the network related parameters are set, please press the "Apply" button to finish the setting. For restoring the network related settings to factory default values, please press the "Default" button.
New Account Apply admin	Account and Password

New Password	Please enter your desired Account and Password. After that, please press the "Apply" button to set or modify the Account and Password for logging in the NVS-40 web UI.
Type Automatically from the internet **Automatically from the internet** Manually **Apply** NTP Server cn.pool.ntp.org Timezone UTC+8	Time Setting This allows users to set the system time.
File Path Browse Update	Firmware Update Please download the latest firmware which the file name is "**nvs40_x_x_x.gz**" from Datavideo official website www.datavideo.com After the latest firmware is downloaded, please select the "**nvs40_x_x_x.gz**" firmware from the hard disk of your PC/laptop by pressing the "Browse" button. After the latest firmware is selected, please press the "Update" button to start the firmware update procedure.

	FPGA Update This function allows users to update the FPGA. Please press the "Browse" button to select the FPGA file and then please press the "Update" button for updating the FPGA.
	Disk Format The "Format Type" drop-down menu allows users to format the SSD/HDD to FAT, NTFS or exFAT format. Users can select their desired disk file format and then press the "Format" button to format their SSD/HDD. From the Device column, users can realize the interface of the hard disk and the remaining space of the SSD/HDD.

Device Name [ ] **Apply**	**Device Name Setting** Please enter your desired device name in the "Device Name" column and then please press "Apply" button for setting the device name.
Timeout Period Never 20 Min 120 Min 1 Day 7 Day Never **Auto Streaming Restart** Enable Disable Enable **Apply**	**Other Option** The "Other Option" allows users to set "Timeout Period" and "Auto Streaming Restart" functions. When the desired settings are set by users, please press the "Apply" button to apply the setting.
System Control Restore to Default Reboot	**System Control** Please press the "Restore to Default" button to restore the NVS-40 back to factory default value. Please press the "Reboot" button to reboot the NVS-40.

5.9.1 How to Set the Time Automatically and Manually

Please follow following steps for setting the system time of the NVS-40 automatically or manually.

- **Automatically from the Internet**

This option allows users to synchronize the system time to the NTP server automatically. Please follow following steps for setting the system time automatically.

1. Please select the "Automatically from the Internet" option from the "Type" drop-down menu.
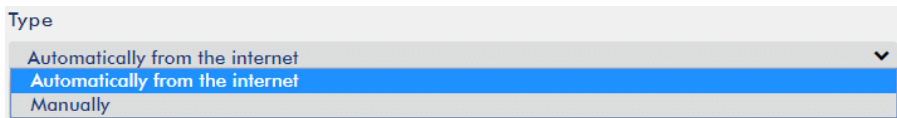
2. Please enter your desired NTP server in the "NTP Server" column. The following diagram takes Google public NTP server as an example.
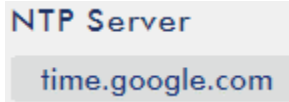
3. Please select your Timezone from the "Timezone" drop-down menu.
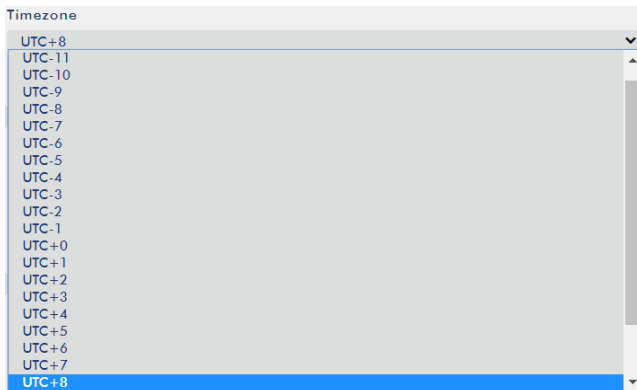
4. Please press the "Apply" button for applying the setting.
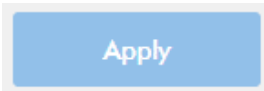
● **Manually**

This option allows users to set the system time manually, please follow following steps for setting the system time.

1. Please select the "Manually" option from the "Type" drop-down menu.
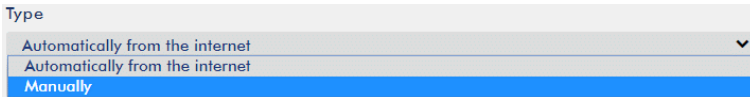
2. Please select your Timezone from the "Timezone" drop-down menu.
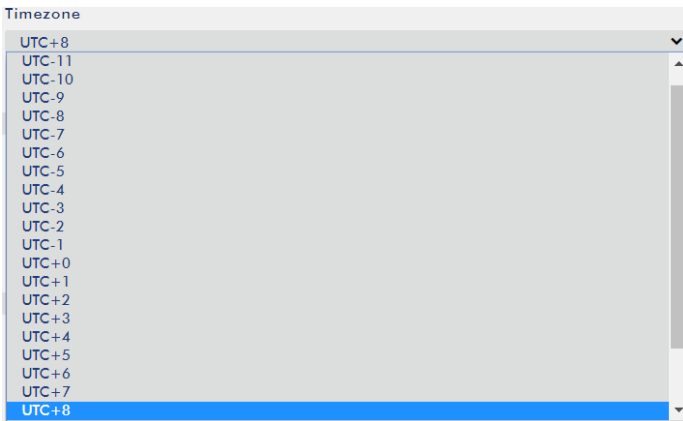
3. Please enter the correct Date and Time into the "Date" and "Time" columns.

Date

  2019-09-12

Time

  16:33:59

4. Please press the "Apply" button for applying the setting.

Apply

Note: If the "Automatically from the Internet" option is selected, users still need to select the Timezone manually by themselves. If the system is restored to the factory default value, the Timezone setting will be kept and will not be changed.

5.9.2 How to Restore the Factory Default IP Address of the NVS-40
Note: This function can be supported only for the version 1.4.3 or later firmware.
The function is effective only when pressing three buttons including MODE, RECORD
and STEAM buttons simultaneously when the NVS-40 is powering on.

Please press the MODE, RECORD and STREAM buttons on the front panel of the NVS-
40 simultaneously **when the NVS-40 is powering on** and then the IP address of the
NVS-40 will be restored to factory default value: 192.168.1.200

5.9.3 The Recommended SSDs for the NVS-40
Please see following table for the recommended SSDs which can be used in the NVS-
40 for users' reference.

Item	Brand/Model	Capacity	Product Picture
1	Sandisk X110	128GB/256GB	
2	SANDISK X300S	256GB	
3	SANDISK Ultra Plus	128GB/256GB	

4	INTEL 530	240GB	
5	SANDISK Extreme	120GB	
6	SANDISK ExtremeⅡ	240GB	
7	Samsung 850 PRO	256GB	
8	Samsung 840PRO	512GB	
9	Crucial M500	120GB	

5.10 Status

After pressing the Status option on the menu bar of the web UI, users can see the Status control page. The Status control interface provides details for following items.

- Input Information for Channel 1 to Channel 4

Input Information							
	Video Source	Audio Source	Resolution	Frame Rate	Channels	Bits Per Sample	Sample Frequency
Channel 1	HDMI	Embedded	1920x1080p	59.94	2	16	48000
Channel 2	HDMI	Embedded	1920x1080p	59.94	2	16	48000
Channel 3	HDMI	Embedded	1920x1080p	59.94	2	16	48000
Channel 4	HDMI	Embedded	1920x1080p	59.94	2	16	48000

- Record Status information for Channel 1 to Channel 4 and PGM

Record Status						
		Encoder Source	Resolution	Frame Rate	Video Bitrate (bps)	Audio Bitrate (bps)
Channel 1	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 2	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 3	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 4	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
PGM	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA

- Stream Status for Channel 1 to Channel 4 and PGM

Stream Status						
		Encoder Source	Resolution	Frame Rate	Video Bitrate (bps)	Audio Bitrate (bps)
Channel 1	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 2	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 3	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
Channel 4	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA
PGM	Main	NA	NA	NA	NA	NA
	Sub	NA	NA	NA	NA	NA

- The hard disk information of the inserted hard disk on the front panel.

Disk Information				
	Name	Size	Format Type	Status
Device	SATA 0	(168.13G / 238.47G)	NTFS	The Disk is Ready

5.11 Advanced

The "Advanced" option allows users to stream specific video input source including CH1 input, CH2 input, CH3 input, CH4 input or PGM to up to 10 streaming platforms by 10 different encodings. Those 10 different encodings include Stream 1 Main, Stream 1 Sub, Stream 2 Main, Stream 2 Sub, Stream 3 Main, Stream 3 Sub, Stream 4 Main, Stream 4 Sub, Stream PGM Main, and Stream PGM Sub.
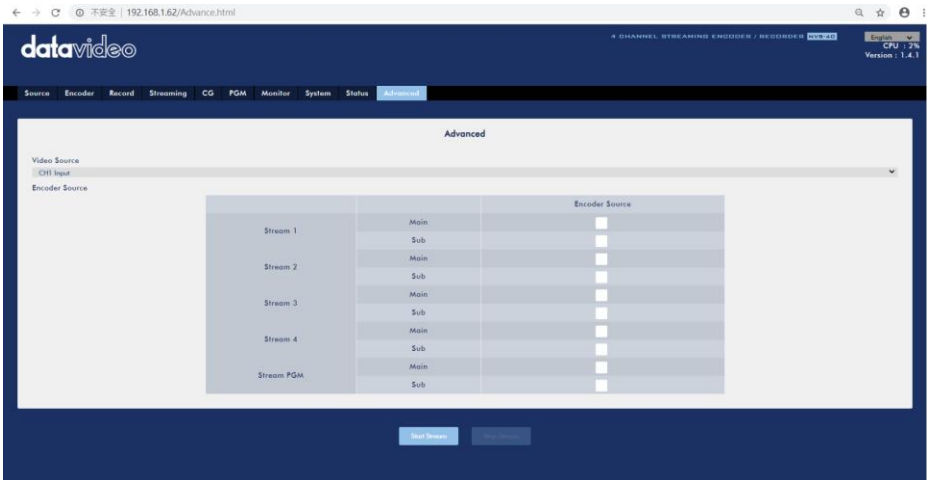
Please follow following steps for streaming one of the input among the input 1 to input 4 & PGM to up to 10 streaming platform.

Step 1. Please make sure that the related settings of the Main Encoder and Sub Encoder for Input 1 to Input 4 and PGM and the related streaming settings of the Input 1 to Input 4 in the Streaming option are set in advance.

Step 2. Please select your desired input source from the Video Source drop-down menu.
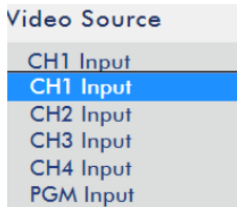
Step 3. Please check the checkbox of your desired Encoder Source.
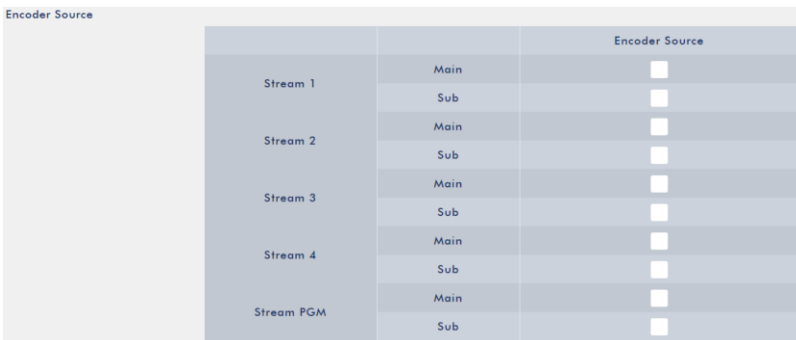
Step 4. Please press the "Start Stream" button for starting streaming.

5.12 The Reason Why Users Can not See the Latest Web UI and the Solutions for this Issue

Generally speaking, the reason why users can not see the latest status of the NVS-40 web UI is due to the issue of the internet browser cache. Web browsers usually provide cache for accelerating the web-browsing speed. So, the content that is shown in your web browser will show you the latest information in the cache of your web browser. For the Microsoft IE browser, please press the "Refresh" button to update the information of your web browser. For the Google Chrome browser, please press "Reload this page" button to update the information of your browser. After that, the latest web page will be shown. If the latest web page can not be shown, please clear the cache and update the setting of your web browser according to following steps. There are four ways for solving this issue.

● How to clear the cache for the IE web browser

Step 1. Please open the IE web browser, press the "Tools" button and then press the "Internet Options".
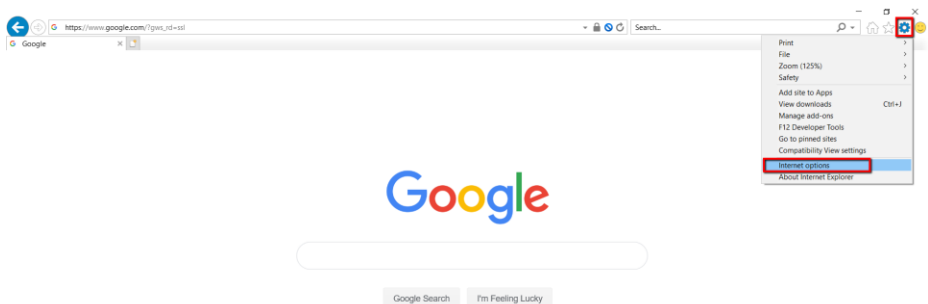
Step 2. Please press the "Delete" button from the Browsing History.
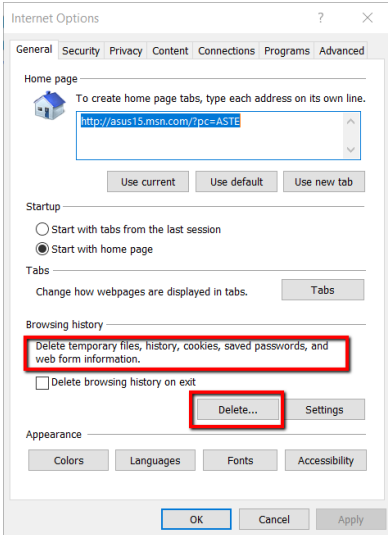
Step 3. Please press the "Delete" button in "Delete Browsing History".
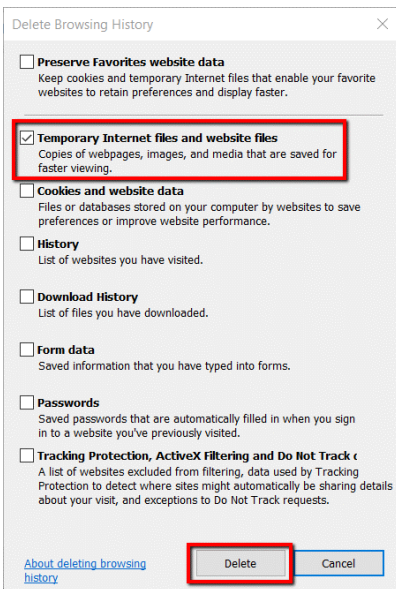
● How to Clear the Cache for the Chrome Web Browser

Step 1: Please open the Chrome web browser, press the "Customize and Control Google Chrome" on the top-right side and then please press "Settings" from the drop-down menu.

Step 2. Please press "Advanced" and then please press "Clear browsing data".
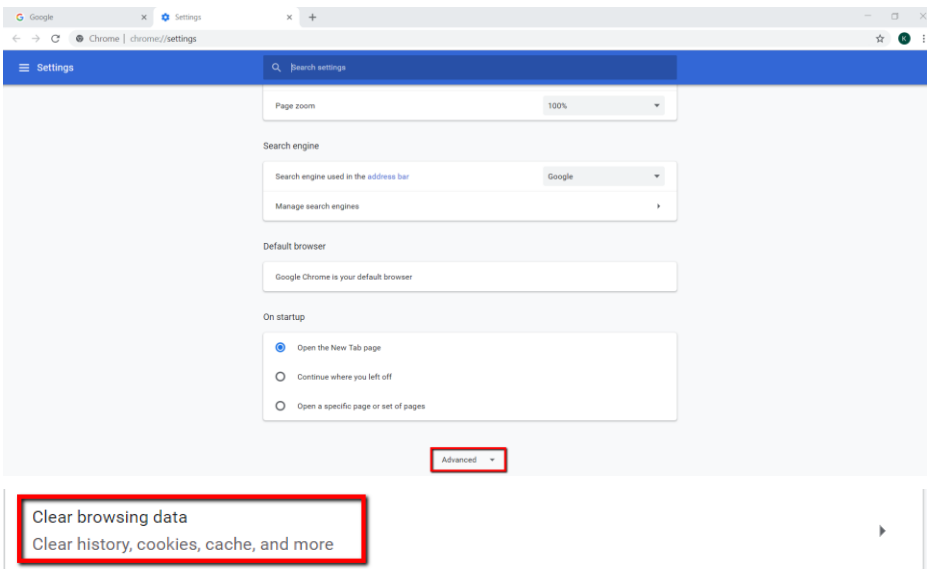
Step 3. Please press "All Time" from the "Time Range" drop-down menu and then please check the checkbox of "Cached images and files". Finally, please press the "Clear data" button.
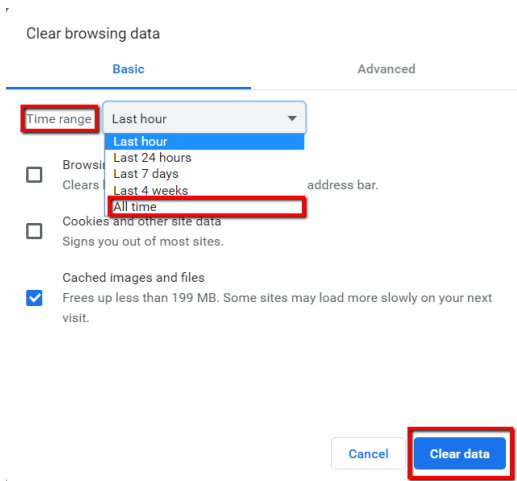
● How to Clear the Cache for the FireFox Browser

Step 1. Please open the FireFox browser and then please press "Options" from the "Open menu" drop-down menu.
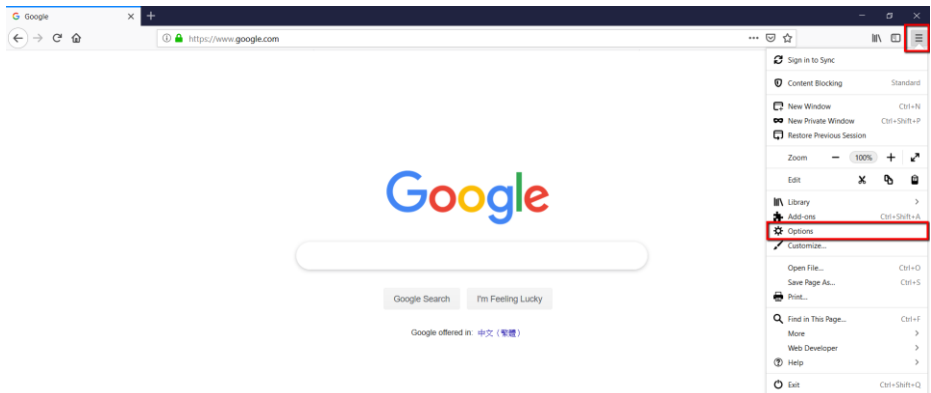
Step 2. Please press "Privacy & Security" option.
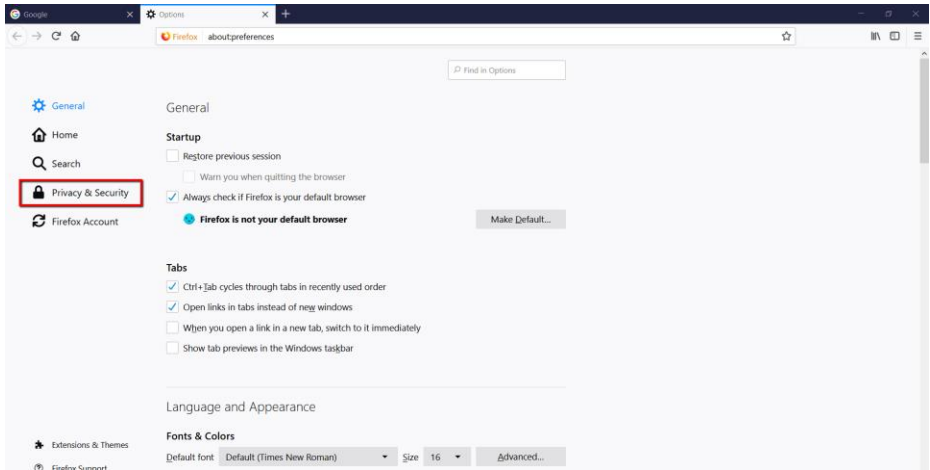
Step 3. Please press "Clear History" button from the "History" option.
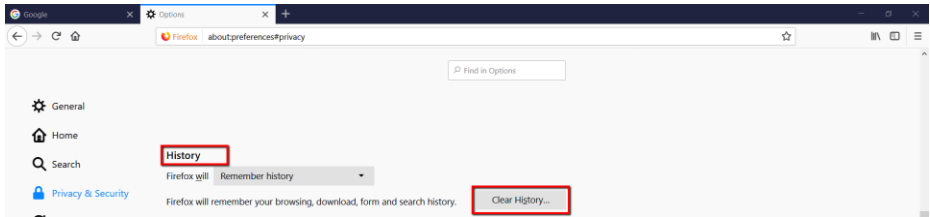
Step 4. Please select "Everything" from the "Clear Recent History" drop-down menu and then please check "Cache". Finally, please press the "Clear Now" button.

● Forced-Clear the Cache Manually to Reload the Web pages.

Please press the "Ctrl" + "F5" buttons simultaneously to force download the web pages.
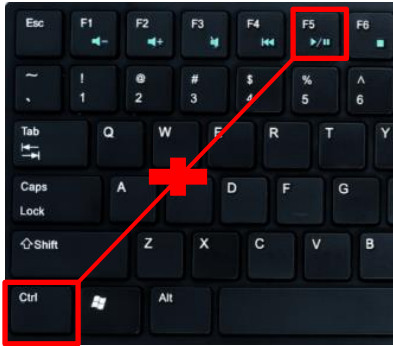
Chapter 6   Firmware and FPGA Update

Please follow following steps for the NVS-40 firmware update.

- **Updating the firmware from the NVS-40 Web UI**

Step 1. Please download the latest NVS-40 firmware with the file name of "nvs40_x_x_x.gz" from Datavideo official website www.datavideo.com

Step 2. Please connect the public network to the WAN port of the router via an RJ-45 Ethernet cable.

Step 3. Please connect another RJ-45 Ethernet cable from the LAN port on the rear panel of the NVS-40 to the router.

Step 4. Please connect an RJ-45 Ethernet cable from the LAN port for the router to your PC/Laptop.

Step 5. Please set your PC/laptop in DHCP mode.

Step 6. Please download Datavideo IP Finder utility software "NVS-2X_IPFinder" on the Datavideo official website www.datavideo.com or by scanning the QR code.

Step 7. Please unzip the zip file and Install the IP Finder utility software after downloading.

Step 8. Open the IP Finder utility software and then the connected NVS-40 IP address will be shown automatically. If the IP address does not show automatically, users can click the **Scan** button to find the IP address of all connected NVS-40 devices.

Step 9. After the connected NVS-40 IP address is shown, please enter the IP address into the address bar of the web browser.

Step 10. The NVS-40 Web Control UI will be shown and then press the System option on the menu bar.
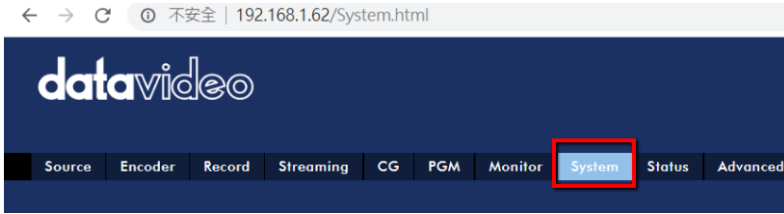
Step 11. Please press the Browse button to select the downloaded firmware.

Step 12. Please press the Update button to start your firmware update.

● **Updating the firmware from the front panel USB port**

Step 1. Please download the latest NVS-40 firmware with the file name of "nvs40_x_x_x.gz" from Datavideo official website www.datavideo.com

Step 2. Please save the latest firmware into a USB thumb drive with the FAT-32 file format. After that, please insert the USB thumb drive into the front panel USB port of the NVS-40. After that, please power off and then power on the NVS-40. Users can see the words "System is updating" and "Please do not power off the system" on the monitor of the external connected HDMI output. After the firmware update procedure is finished, the system will reboot itself. After that, please log into the NVS-40 web UI again and then the latest firmware version is shown.

Please follow following steps for updating the FPGA of the NVS-40.

Step 1. Please download the .bin file from the Datavideo official website www.datavideo.com for updating the FPGA.

Step 2. Please press the "Browse" button to select the latest .bin file.
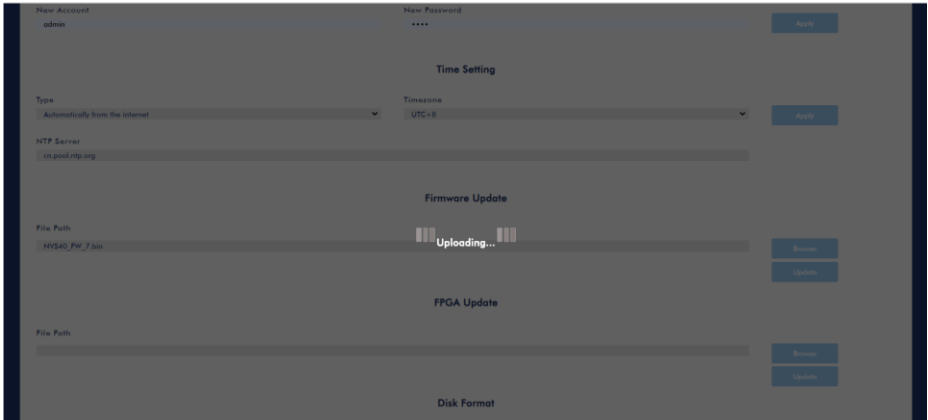
Step 3. Please press the "Update" button.
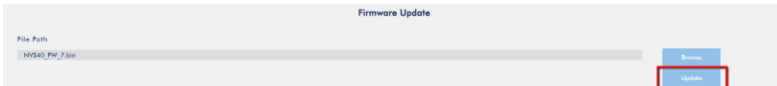
Step 4. The FPGA update will be started, please wait until the percentage reaches 100%. After that, please press the "OK" button.
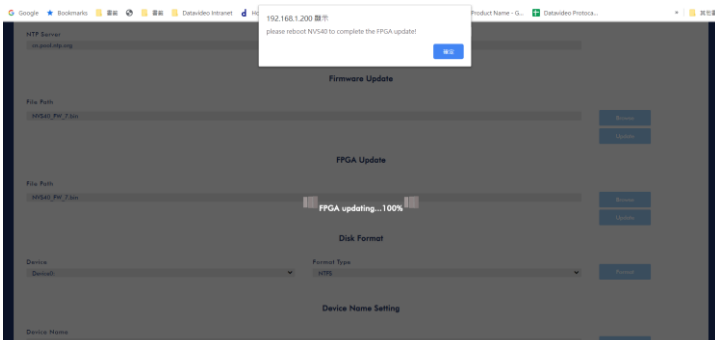
Step 5. Please press the "Reboot" button and then the system will be rebooted. After that, the FPGA update procedure is finished successfully.
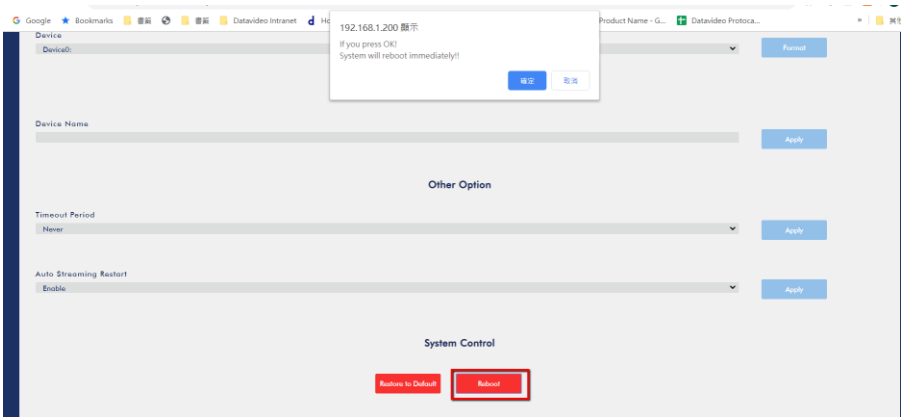
Chapter 7   Frequently Asked Questions

This section describes problems that you may encounter while using the NVS-40. If you have questions, please refer to related sections and follow all the suggested solutions. If problem still exists, please contact your distributor or the service center.

No.	Problems	Solutions
1.	**How to use the SATA to USB 3.0 Adapter Cable?**	After the SSD/HDD enclosure is pulled out from the NVS-40, users can connect the SSD/HDD enclosure to their PC/Laptop directly by this SATA to USB 3.0 Adapter Cable.
2	**Why it is easy for the encoded video to be pixelated.**	Please ensure whether the network speed and the router are qualified for the 10/100/1000M Ethernet speed standard.

Chapter 8   Dimensions
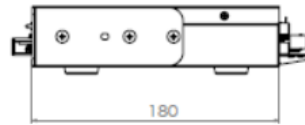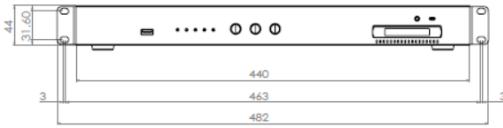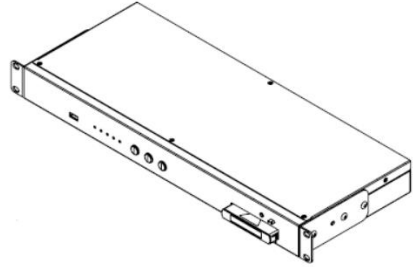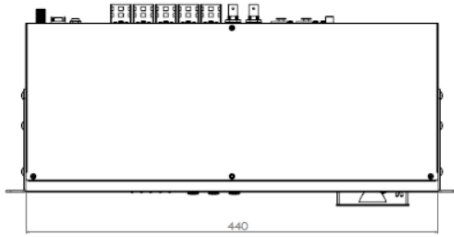
All measurements in millimeters (mm)

Chapter 9   Specification

Interface	
Video Input	3G/HD/SD-SDI x1 (BNC 75 ohm) HDMI 1.4 x4 (Channel 1 as SDI/HDMI selectable)
Audio Input	XLR Balanced audio x2 RCA Unbalanced audio x 1 pair SDI embedded audio HDMI embedded audio
Video Output	3G/HD/SD-SDI loop-through x1 HDMI 1.4 x1(PGM) RJ-45 female x1 (10/100/1000M Ethernet)(Streaming)
SSD/HDD Interface	SATA(6Gb/s)
Recording File System	FAT, NTFS, exFAT
Recording File Format	MP4, MOV,TS
General	
Setting & Control	Web UI for system configuration and control
Firmware Update	Firmware upgradable by Web UI(network)
Standard	
Supported Input Resolutions	1080p60/59.94/50, 1080p30/29.97/25/24/23.98 1080i60/59.94/50 720p60/59.94/50 480i59.94, 576i50
Supported Output Resolutions	Same as input resolution, or scaled down
Audio Encoder	AAC-LC Sample rate:48KHz, 16bit Configurable bit rate: 128K or 256K or 384K
Network Feature	• TS over UDP unicast & multicast • RTSP over HTTP/TCP/UDP • RTMP (Publish) • RTMPS • SRT over UDP • HLS
Applications (Stream Platforms/Stream Media Servers)	• Youtube • Live House • Ustream

	• Akami
	• Facebook
	• Twitch
	• Wowza
	• Adobe Media Server
Web UI Language	English, Simplified Chinese and Japanese
Operating Temperature	0°C to 40°C (32°F to 122°F)
Chassis	1U rack mount
Power	DC 12V 2A

Appendix 1 LED indicator Status and Behaviors

Please refer to following table for the LED indictor status and behaviors of the NVS-40 and its SSD/HDD enclosure.

NVS-40

Function	RED	Blinking RED	GREEN
Power LED	System Boot-up/Program Initialization	Error	System Ready
SDI	N/A	Error	Source Input OK
HDMI	N/A	Error	Source Input OK
REC	N/A	Error 1. The hard disk is not inserted into the HD slot or the hard disk is inserted without locking. 2. All of the Recording settings of the Web UI are set in "Disable "Disable". 3. There is no input signal. 4. If the Advanced Mode is activated.	Recording
STREAM	N/A	Error 1. The Ethernet cable is not connected. 2. All of the Streaming settings of the Web UI are set in "Disable". 3. There is no input signal.	Streaming On

SSD/HDD Enclosure

The LED indicator above the SSD/HDD enclosure will flash in green which means the SSD/HDD is in data accessing. Please refer to following table for the LED indictor status and behavior of the SSD or HDD.

SSD/HDD LED Status	LED is On	LED is Blinking	LED is OFF
SSD/HDD Behavior	Mounted/Ready	Recording	Unmounted/Driver Error

Appendix 2 NVS-40 Front Panel Buttons Behaviors

There are three buttons on the front panel of the NVS-40 including MODE, RECORD and STREAM, please refer to following table for the NVS-40 front panel buttons behaviors.

Button	Behavior	Description	LED Indicator Status
MODE (Stream ON)	Press Once	Stop Stream→ Change to next (HDMI→ SDI→) → Start Stream	1. Streaming LED will be OFF 2. Interface LED will be changed 3. Stream LED will be ON (if there is a valid source input.
MODE(Stream OFF)	Press Once	Change to next (HDMI→SDI→)	Interface LED will be changed.
RECORD	Press Once	Start/Stop Recording	Record LED ON/OFF
STM	Hold for 3 seconds until the Stream LED is lit up.	Start/Stop Stream	Stream LED will be ON (green)/OFF to start/stop streaming.

Note

Service & Support

It is our goal to make your products ownership a satisfying experience. Our supporting staff is available to assist you in setting up and operating your system. Please refer to our web site www.datavideo.com for answers to common questions, support requests or contact your local office below.

Please visit our website for latest manual update.
https://www.datavideo.com/product/NVS-40

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